



STATE OF UTAH - DEPARTMENT OF ADMINISTRATIVE SERVICES

Division of Facilities Construction and Management

DFCM

STANDARD LOW BID PROJECT

February 7, 2006

LOADING DOCK AND ENTRANCE DOOR IMPROVEMENTS VERNAL ABC STORE #28

DEPARTMENT OF ALCOHOLIC BEVERAGE CONTROL VERNAL, UTAH

DFCM Project # 05076030

Prior & Associates

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Current copies of the following documents are hereby made part of these contract documents by reference. These documents are available on the DFCM web site at <http://dfcm.utah.gov> or are available upon request from DFCM.

DFCM General Conditions dated May 25, 2005.

DFCM Application and Certification for Payment dated May 25, 2005.

Technical Specifications :
Drawings:

The Agreement and General Conditions dated May 25, 2005 have been updated from versions that were formally adopted and in use prior to this date. The changes made to the General Conditions are identified in a document entitled Revisions to General Conditions that is available on DFCM's web site at <http://dfcm.utah.gov>

NOTICE TO CONTRACTORS

Sealed bids will be received by the Division of Facilities Construction and Management (DFCM) for:

LOADING DOCK AND EXTERIOR DOOR IMPROVEMENTS - VERNAL ABC STORE # 28
DEPARTMENT OF ALCOHOLIC BEVERAGE CONTROL – VERNAL, UTAH
DFCM PROJECT NO: 05076030

Bids will be in accordance with the Contract Documents that will be available at 8:00 AM on Tuesday, February 7, 2006 in hard copy from DFCM, 4110 State Office Building, SLC, Utah and on the DFCM web page at <http://dfcm.utah.gov>. Hard copy plans and specifications will be available at the mandatory pre-bid walk thru. Approved plan repositories may obtain a hard copy set from DFCM. For questions regarding this project, please contact Vic Middleton, DFCM, at 801-971-0504. No others are to be contacted regarding this bidding process. The construction budget for this project is \$45,000.00.

A **mandatory** pre-bid meeting will be held at 2:00 PM on Friday, February 17, 2006. Meet at the main entrance of the Vernal ABC Store, 675 East Main Street, Vernal, Utah. All bidders wishing to bid on this project are required to attend this meeting.

Bids will be received until the hour of 2:30 PM on Wednesday, March 1, 2006 at DFCM. **DURING THE 2006 LEGISLATIVE SESSION, THE BIDS WILL BE RECEIVED, OPENED, AND READ ALOUD IN THE CONFERENCE CENTER BUILDING AT THE UTAH STATE FAIRPARK, 155 NORTH 1000 WEST, SALT LAKE CITY, UTAH.** Note: Bids must be received at the Conference Center Building at the Utah State Fairpark by the specified time.

Bid security, in the amount of five percent (5%) of the bid, must be submitted as stated in the Instruction to Bidders.

The Division of Facilities Construction and Management reserves the right to reject any or all bids or to waive any formality or technicality in any bid in the interest of DFCM.

DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT
Marla Workman, Contract Coordinator
4110 State Office Building, Salt Lake City, Utah 84114

PROJECT SCHEDULE

PROJECT NAME: LOADING DOCK AND EXTERIOR DOOR IMPROVEMENTS VERNAL ABC STORE # 28 DEPT OF ALCOHOLIC BEVERAGE CONTROL – VERNAL, UTAH DFCM PROJECT #: 05076030				
Event	Day	Date	Time	Place
Advertisement Placed	Sunday	February 5, 2006		Multi-Media
Bidding Documents Available	Tuesday	February 7, 2006	8:00 AM	DFCM, 4110 State Office Bldg, SLC, UT or DFCM web site *
Mandatory Pre-bid Site Meeting	Friday	February 17, 2006	2:00 PM	Main Entrance Vernal ABC Store 675 East Main Street Vernal, UT
Last Day to Submit Questions	Tuesday	February 21, 2006	4:00 PM	DFCM Attn: Vic Middleton vmiddlet@utah.gov
Final Addendum Issued	Friday	February 24, 2006	4:00 PM	DFCM, 4110 State Office Bldg, SLC, UT or DFCM web site *
Prime Contractors Turn In Bid and Bid Bond	Wednesday	March 1, 2006	2:30 PM	Conference Center Bldg Utah State Fairpark 155 North 1000 West Salt Lake City, UT **
Sub-contractor List Due	Thursday	March 2, 2006	2:30 PM	DFCM, 4110 State Office Bldg, SLC, UT FAX 801-538-3677

* **DFCM's web site address is <http://dfcm.utah.gov>**

** **Due to the limited parking on Capitol Hill and anticipated shortage of parking during the 2006 Legislative Session, all bids will be received, opened, and read at the Conference Center at the Utah State Fairpark. Refer to map on the DFCM web site for directions (http://dfcm.utah.gov/project_center/ads_solicitations.htm)**



STATE OF UTAH - DEPARTMENT OF ADMINISTRATIVE SERVICES

Division of Facilities Construction and Management

DFCM

BID FORM

NAME OF BIDDER _____ DATE _____

To the Division of Facilities Construction and Management
4110 State Office Building
Salt Lake City, Utah 84114

The undersigned, responsive to the "Notice to Contractors" and in accordance with the "Instructions to Bidders", in compliance with your invitation for bids for the **LOADING DOCK AND EXTERIOR DOOR IMPROVEMENTS – VERNAL ABC STORE #28 – DEPT OF ALCOHOLIC BEVERAGE CONTROL – VERNAL, UTAH – DFCM PROJECT NO. 05076030** and having examined the Contract Documents and the site of the proposed Work and being familiar with all of the conditions surrounding the construction of the proposed Project, including the availability of labor, hereby proposes to furnish all labor, materials and supplies as required for the Work in accordance with the Contract Documents as specified and within the time set forth and at the price stated below. This price is to cover all expenses incurred in performing the Work required under the Contract Documents of which this bid is a part:

I/We acknowledge receipt of the following Addenda: _____

For all work shown on the Drawings and described in the Specifications and Contract Documents, I/we agree to perform for the sum of:

_____ DOLLARS (\$_____) (In case of discrepancy, written amount shall govern)

I/We guarantee that the Work will be Substantially Complete within **120 calendar days** after receipt of the Notice to Proceed, should I/we be the successful bidder, and agree to pay liquidated damages in the amount of **\$200.00** per day for each day after expiration of the Contract Time as stated in Article 3 of the Contractor's Agreement.

This bid shall be good for 45 days after bid opening.

Enclosed is a 5% bid bond, as required, in the sum of _____

The undersigned Contractor's License Number for Utah is _____

Upon receipt of notice of award of this bid, the undersigned agrees to execute the contract within ten (10) days, unless a shorter time is specified in the Contract Documents, and deliver acceptable Performance and Payment bonds in the prescribed form in the amount of 100% of the Contract Sum for faithful performance of the contract.

The Bid Bond attached, in the amount not less than five percent (5%) of the above bid sum, shall become the property of the Division of Facilities Construction and Management as liquidated damages for delay and additional expense caused thereby in the event that the contract is not executed and/or acceptable 100% Performance and Payment bonds are not delivered within the time set forth.

Type of Organization:

(Corporation, Partnership, Individual, etc.)

Any request and information related to Utah Preference Laws:

Respectfully submitted,

Name of Bidder

ADDRESS:

Authorized Signature

INSTRUCTIONS TO BIDDERS

1. **Drawings and Specifications, Other Contract Documents**

Drawings and Specifications, as well as other available Contract Documents, may be obtained as stated in the Notice to Contractors.

Any person or firm that fails to return the complete set of Drawings and Specifications, or other contract documents, in good condition within ten (10) days after the time set for receiving bids, will forfeit the deposit. Notwithstanding this, if the Contract Documents are provided on a compact disc, the compact disc does not need to be returned.

2. **Bids**

Before submitting a bid, each contractor shall carefully examine the Contract Documents, shall visit the site of the Work; shall fully inform themselves as to all existing conditions and limitations; and shall include in the bid the cost of all items required by the Contract Documents. If the bidder observes that portions of the Contract Documents are at variance with applicable laws, building codes, rules, regulations or contain obvious erroneous or uncoordinated information, the bidder shall promptly notify the DFCM Representative and the necessary changes shall be accomplished by Addendum.

The bid, bearing original signatures, must be typed or handwritten in ink on the Bid Form provided in the procurement documents and submitted in a sealed envelope at the location specified by the Notice to Contractor's prior to the deadline for submission of bids. It is your responsibility to allow for the time needed to park in Capitol Hill as recent construction activity has made the parking more difficult. Identification is required to enter the building.

Bid bond security, in the amount of five percent (5%) of the bid, made payable to the Division of Facilities Construction and Management, shall accompany bid. THE BID BOND MUST BE ON THE BID BOND FORM PROVIDED IN THE PROCUREMENT DOCUMENTS IN ORDER TO BE CONSIDERED AN ACCEPTABLE BID.

If the bid bond security is submitted on a bid bond form other than DFCM's required bid bond form, and the bid security meets all other legal requirements, the bidder will be allowed to provide an acceptable bid bond by the close of business on the next business day following notification by DFCM of submission of a defective bid bond security. NOTE: A cashier's check cannot be used as a substitute for a bid bond.

3. **Contract and Bond**

The Contractor's Agreement will be in the form bound in the specifications. The Contract Time will be as indicated in the bid. The successful bidder, simultaneously with the execution of the Contract Agreement, will be required to furnish a performance bond and a payment bond, both bearing original

signatures, upon the forms provided in the procurement documents. The performance and payment bonds shall be for an amount equal to one hundred percent (100%) of the contract sum and secured from a company that meets the requirements specified in the requisite forms. Any bonding requirements for subcontractors will be specified in the Supplementary General Conditions.

4. Listing of Subcontractors

Listing of Subcontractors shall be as summarized in the “Instructions and Subcontractor’s List Form”, which are included as part of these Contract Documents. The Subcontractors List shall be delivered to DFCM or faxed to DFCM at (801)538-3677 within 24 hours of the bid opening. Requirements for listing additional subcontractors will be listed in the Contract Documents.

DFCM retains the right to audit or take other steps necessary to confirm compliance with requirements for the listing and changing of subcontractors. Any contractor who is found to not be in compliance with these requirements is subject to a debarment hearing and may be debarred from consideration for award of contracts for a period of up to three years.

5. Interpretation of Drawings and Specifications

If any person or entity contemplating submitting a bid is in doubt as to the meaning of any part of the drawings, specifications or other Contract Documents, such person shall submit to the DFCM Project Manager a request for an interpretation thereof. The person or entity submitting the request will be responsible for its prompt delivery. Any interpretation of the proposed documents will be made only by addenda duly issued and a copy of such addenda will be mailed or delivered to each person or entity receiving a set of documents. Neither the DFCM nor A/E will be responsible for any other explanations or interpretations of the proposed documents. A/E shall be deemed to refer to the architect or engineer hired by DFCM as the A/E or Consultant for the Project.

6. Addenda

Any Addenda issued during the time of bidding shall become part of the contract Documents made available to the bidders for the preparation of the bid, shall be covered in the bid, and shall be made a part of the Contract.

7. Award of Contract

The Contract will be awarded as soon as possible to the lowest, responsive and responsible bidder, based on the lowest combination of base bid and acceptable prioritized alternates, provided the bid is

reasonable, is in the interests of the State of Utah to accept and after applying the Utah Preference Laws in U.C.A. Title 63, Chapter 56. DFCM reserves the right to waive any technicalities or formalities in any bid or in the bidding. Alternates will be accepted on a prioritized basis with Alternate 1 being highest priority, Alternate 2 having second priority, etc.

8. DFCM Contractor Performance Rating

As a contractor completes each DFCM project, DFCM, the architect/engineer and the using agency will evaluate project performance based on the enclosed “DFCM Contractor Performance Rating” form. The ratings issued on this project will not affect this project but may affect the award on future projects.

9. Licensure

The Contractor shall comply with and require all of its subcontractors to comply with the license laws as required by the State of Utah.

10. Right to Reject Bids

DFCM reserves the right to reject any or all Bids.

11. Time is of the Essence

Time is of the essence in regard to all the requirements of the Contract Documents.

12. Withdrawal of Bids

Bids may be withdrawn on written request received from bidder prior to the time fixed for opening. Negligence on the part of the bidder in preparing the bid confers no right for the withdrawal of the bid after it has been opened.

13. Product Approvals

Where reference is made to one or more proprietary products in the Contract Documents, but restrictive descriptive materials of one or more manufacturer(s) is referred to in the Contract Documents, the products of other manufacturers will be accepted, provided they equal or exceed the standards set forth in the drawings and specifications and are compatible with the intent and purpose of the design, subject to the written approval of the A/E. Such written approval must occur prior to the deadline established for the last scheduled addenda to be issued. The A/E's written approval will be in an issued addendum. If the descriptive material is not restrictive, the products of other manufacturers specified will be accepted without prior approval provided they are compatible with the intent and purpose of the design as determined by the A/E.

14. Financial Responsibility of Contractors, Subcontractors and Sub-subcontractors

Contractors shall respond promptly to any inquiry in writing by DFCM to any concern of financial responsibility of the contractor, subcontractor or sub-subcontractor.

15. Debarment

By submitting a bid, the Contractor certifies that neither it nor its principals, including project and site managers, have been, or are under consideration for, debarment or suspension, or any action that would exclude such from participation in a construction contract by any governmental department or agency. If the Contractor cannot certify this statement, attach to the bid a detailed written explanation which must be reviewed and approved by DFCM as part of the requirements for award of the Project.

BID BOND

(Title 63, Chapter 56, U. C. A. 1953, as Amended)

KNOW ALL PERSONS BY THESE PRESENTS:

That _____ hereinafter referred to as the "Principal," and _____, a corporation organized and existing under the laws of the State of _____, with its principal office in the City of _____ and authorized to transact business in this State and U. S. Department of the Treasury Listed, (Circular 570, Companies Holding Certificates of Authority as Acceptable Securities on Federal Bonds and as Acceptable Reinsuring Companies); hereinafter referred to as the "Surety," are held and firmly bound unto the STATE OF UTAH, hereinafter referred to as the "Obligee," in the amount of \$ _____ (5% of the accompanying bid), being the sum of this Bond to which payment the Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH that whereas the Principal has submitted to Obligee the accompanying bid incorporated by reference herein, dated as shown, to enter into a contract in writing for the _____ Project.

NOW, THEREFORE, THE CONDITION OF THE ABOVE OBLIGATION IS SUCH, that if the said principal does not execute a contract and give bond to be approved by the Obligee for the faithful performance thereof within ten (10) days after being notified in writing of such contract to the principal, then the sum of the amount stated above will be forfeited to the State of Utah as liquidated damages and not as a penalty; if the said principal shall execute a contract and give bond to be approved by the Obligee for the faithful performance thereof within ten (10) days after being notified in writing of such contract to the Principal, then this obligation shall be null and void. It is expressly understood and agreed that the liability of the Surety for any and all defaults of the Principal hereunder shall be the full penal sum of this Bond. The Surety, for value received, hereby stipulates and agrees that obligations of the Surety under this Bond shall be for a term of sixty (60) days from actual date of the bid opening.

PROVIDED, HOWEVER, that this Bond is executed pursuant to provisions of Title 63, Chapter 56, Utah Code Annotated, 1953, as amended, and all liabilities on this Bond shall be determined in accordance with said provisions to same extent as if it were copied at length herein.

IN WITNESS WHEREOF, the above bounden parties have executed this instrument under their several seals on the date indicated below, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

DATED this _____ day of _____, 20_____.

Principal's name and address (if other than a corporation):

By: _____

Title: _____

Principal's name and address (if a corporation):

By: _____

Title: _____
(Affix Corporate Seal)

Surety's name and address:

STATE OF _____)
COUNTY OF _____) ss.

By: _____
Attorney-in-Fact (Affix Corporate Seal)

On this ____ day of _____, 20_____, personally appeared before me _____, whose identity is personally known to me or proved to me on the basis of satisfactory evidence, and who, being by me duly sworn, did say that he/she is the Attorney-in-fact of the above-named Surety Company, and that he/she is duly authorized to execute the same and has complied in all respects with the laws of Utah in reference to becoming sole surety upon bonds, undertakings and obligations, and that he/she acknowledged to me that as Attorney-in-fact executed the same.

Subscribed and sworn to before me this _____ day of _____, 20_____.

My Commission Expires: _____

Resides at: _____

Agency: _____
Agent: _____
Address: _____
Phone: _____

NOTARY PUBLIC

Approved As To Form: May 25, 2005
By Alan S. Bachman, Asst Attorney General

**Division of Facilities Construction and****INSTRUCTIONS AND SUBCONTRACTORS LIST FORM**

The three low bidders, as well as all other bidders that desire to be considered, are required by law to submit to DFCM within 24 hours of bid opening a list of **ALL** first-tier subcontractors, including the subcontractor's name, bid amount and other information required by Building Board Rule and as stated in these Contract Documents, on the following basis:

PROJECTS UNDER \$500,000 - ALL SUBS \$20,000 OR OVER MUST BE LISTED
PROJECTS \$500,000 OR MORE - ALL SUBS \$35,000 OR OVER MUST BE LISTED

- Any additional subcontractors identified in the bid documents shall also be listed.
- The DFCM Director may not consider any bid submitted by a bidder if the bidder fails to submit a subcontractor list meeting the requirements of State law.
- List subcontractors for base bid as well as the impact on the list that the selection of any alternate may have.
- Bidder may not list more than one subcontractor to perform the same work.
- Bidder must list "Self" if performing work itself.

LICENSURE:

The subcontractor's name, the type of work, the subcontractor's bid amount, and the subcontractor's license number as issued by DOPL, if such license is required under Utah Law, shall be listed. Bidder shall certify that all subcontractors, required to be licensed, are licensed as required by State law. A subcontractor includes a trade contractor or specialty contractor and does not include suppliers who provide only materials, equipment, or supplies to a contractor or subcontractor.

BIDDER LISTING 'SELF' AS PERFORMING THE WORK:

Any bidder that is properly licensed for the particular work and intends to perform that work itself in lieu of a subcontractor that would otherwise be required to be on the subcontractor list, must insert the term 'Self' for that category on the subcontractor list form. Any listing of 'Self' on the sublist form shall also include the amount allocated for that work.

'SPECIAL EXCEPTION':

A bidder may list 'Special Exception' in place of a subcontractor when the bidder intends to obtain a subcontractor to perform the work at a later date because the bidder was unable to obtain a qualified or reasonable bid under the provisions of U.C.A. Section 63A-5-208(4). The bidder shall insert the term 'Special Exception' for that category of work, and shall provide documentation with the subcontractor list describing the bidder's efforts to obtain a bid of a qualified subcontractor at a reasonable cost and why the bidder was unable to obtain a qualified subcontractor bid. The Director must find that the bidder complied in good faith with State law requirements for any 'Special Exception' designation, in order for the bid to be considered. If awarded the contract, the Director shall supervise the bidder's efforts to obtain a qualified subcontractor bid. The amount of the awarded contract may not be adjusted to reflect the actual amount of the subcontractor's bid. Any listing of 'Special Exception' on the sublist form shall also include amount allocated for that work.

INSTRUCTIONS AND SUBCONTRACTORS LIST FORM
Page No. 2

GROUND FOR DISQUALIFICATION:

The Director may not consider any bid submitted by a bidder if the bidder fails to submit a subcontractor list meeting the requirements of State law. Director may withhold awarding the contract to a particular bidder if one or more of the proposed subcontractors are considered by the Director to be unqualified to do the Work or for such other reason in the best interest of the State of Utah. Notwithstanding any other provision in these instructions, if there is a good faith error on the sublist form, at the sole discretion of the Director, the Director may provide notice to the contractor and the contractor shall have 24 hours to submit the correction to the Director. If such correction is submitted timely, then the sublist requirements shall be considered met.

CHANGES OF SUBCONTRACTORS SPECIFICALLY IDENTIFIED ON SUBLIST FORM:

Subsequent to twenty-four hours after the bid opening, the contractor may change its listed subcontractors only after receiving written permission from the Director based on complying with all of the following criteria.

- (1) The contractor has established in writing that the change is in the best interest of the State and that the contractor establishes an appropriate reason for the change, which may include, but not is not limited to, the following reasons: the original subcontractor has failed to perform, or is not qualified or capable of performing, and/or the subcontractor has requested in writing to be released.
- (2) The circumstances related to the request for the change do not indicate any bad faith in the original listing of the subcontractors.
- (3) Any requirement set forth by the Director to ensure that the process used to select a new subcontractor does not give rise to bid shopping.
- (4) Any increase in the cost of the subject subcontractor work is borne by the contractor.
- (5) Any decrease in the cost of the subject subcontractor work shall result in a deductive change order being issued for the contract for such decreased amount.
- (6) The Director will give substantial weight to whether the subcontractor has consented in writing to being removed unless the Contractor establishes that the subcontractor is not qualified for the work.

EXAMPLE:

Example of a list where there are only four subcontractors:

TYPE OF WORK	SUBCONTRACTOR, "SELF" OR "SPECIAL EXCEPTION"	SUBCONTRACTOR BID AMOUNT	CONT. LICENSE #
ELECTRICAL	ABCD Electric Inc.	\$350,000.00	123456789000
LANDSCAPING	"Self"	300,000.00	123456789000
CONCRETE (ALTERNATE #1)	XYZ Concrete Inc	298,000.00	987654321000
MECHANICAL	"Special Exception" (attach documentation)	Fixed at: 350,000.00	(TO BE PROVIDED AFTER OBTAINING SUBCONTRACTOR)

**PURSUANT TO STATE LAW - SUBCONTRACTOR BID AMOUNTS CONTAINED IN THIS
SUBCONTRACTOR LIST SHALL NOT BE DISCLOSED UNTIL THE CONTRACT HAS BEEN AWARDED.**



SUBCONTRACTORS LIST

FAX TO 801-538-3677

PROJECT TITLE: _____

Caution: You must read and comply fully with instructions.

TYPE OF WORK	SUBCONTRACTOR, "SELF" OR "SPECIAL EXCEPTION"	SUBCONTRACTOR BID AMOUNT	CONT. LICENSE #

We certify that:

1. This list includes all subcontractors as required by the instructions, including those related to the base bid as well as any alternates.
2. We have listed "Self" or "Special Exception" in accordance with the instructions.
3. All subcontractors are appropriately licensed as required by State law.

FIRM: _____

DATE: _____

SIGNED BY: _____

NOTICE: FAILURE TO SUBMIT THIS FORM, PROPERLY COMPLETED AND SIGNED, AS REQUIRED IN THESE CONTRACT DOCUMENTS, SHALL BE GROUNDS FOR DFCMS REFUSAL TO ENTER INTO A WRITTEN CONTRACT WITH BIDDER. ACTION MAY BE TAKEN AGAINST BIDDERS BID BOND AS DEEMED APPROPRIATE BY DFCM. ATTACH A SECOND PAGE IF NECESSARY.

FUGITIVE DUST PLAN

The Contractor will fill out the form and file the original with the Division of Air Quality and a copy of the form with the Division of Facilities Construction & Management, prior to the issuance of any notice to proceed.

The Contractor will be fully responsible for compliance with the Fugitive Dust Control Plan, including the adequacy of the plan, any damages, fines, liability, and penalty or other action that results from noncompliance.

Utah Division of Air Quality

April 20, 1999

**GUIDANCE THAT MUST BE CONSIDERED IN DEVELOPING AND SUBMITTING A
DUST CONTROL PLAN FOR COMPLIANCE WITH R307-309-3, 4, 5, 6, 7**

Source Information:

1. Name of your operation (source): provide a name if the source is a construction site.
2. Address or location of your operation or construction site.
3. UTM coordinates or Longitude/Latitude of stationary emission points at your operation.
4. Lengths of the project, if temporary (time period).
5. Description of process (include all sources of dust and fugitive dust). Please, if necessary, use additional sheets of paper for this description. Be sure to mark it as an attachment.
6. Type of material processed or disturbed.
7. Amount of material processed (tons per year, tons per month, lbs./hr., and applicable units).

8. Destination of product (where will the material produced be used or transported, be specific, provide address or specific location), information needed for temporary relocation applicants.
9. Identify the individual who is responsible for the implementation and maintenance of fugitive dust control measures. List name(s), position(s) and telephone number(s).
10. List, and attach copies of any contract lease, liability agreement with other companies that may, or will, be responsible for dust control on site or on the project.

Description of Fugitive Dust Emission Activities
(Things to consider in addressing fugitive dust control strategies.)

1. Type of activities (drilling and blasting, road construction, development construction, earth moving and excavation, handling and hauling materials, cleaning and leveling, etc).
2. List type of equipment generating the fugitive dust.
3. Diagram the location of each activity or piece of equipment on site. Please attach the diagram.
4. Provide pictures or drawings of each activity. Include a drawing of the unpaved/paved road network used to move loads “on” and “off” property.
5. Vehicle miles travels on unpaved roads associated with the activity (average speed).
6. Type of dust emitted at each source (coal, cement, sand, soil, clay, dust, etc.)
7. Estimate the size of the release area at which the activity occurs (square miles). For haul or dirt roads include total miles of road in use during the activity.

Description of Fugitive Dust Emission Controls on Site

Control strategies must be designed to meet 20% opacity or less on site (a lesser opacity may be defined by Approval Order conditions or federal requirements such as NSPS), and control strategies must prevent exceeding 10% opacity from fugitive dust at the property boundary (site boundary) for compliance with R307-309-3.

1. Types of ongoing emission controls proposed for each activity, each piece of equipment, and haul roads.
2. Types of additional dust controls proposed for bare, exposed surfaces (chemical stabilization, synthetic cover, wind breaks, vegetative cover, etc).
3. Method of application of dust suppressant.
4. Frequency of application of dust suppressant.
5. Explain what triggers the use of a special control measure other than routine measures already in place, such as covered loads or measures covered by a permit condition (increase in opacity, high winds, citizen complaints, dry conditions, etc).
6. Explain in detail what control strategies/measures will be implemented off-hours, i.e., Saturdays/Sundays/Holidays, as well as 6 PM to 6 AM each day.

Description of Fugitive Dust Control Off-site

Prevent, to the maximum extent possible, deposition of materials, which may create fugitive dust on public and private paved roads in compliance with R307-309-5, 6, 7.

1. Types of emission controls initiated by your operation that are in place “off” property (application of water, covered loads, sweeping roads, vehicle cleaning, etc.).

2. Proposed remedial controls that will be initiated promptly if materials, which may create fugitive dust, are deposited on public and private paved roads.

Submit the Dust Control Plan to:

Executive Secretary
Utah Air Quality Board
POB 144820
15 North 1950 West
Salt Lake City, Utah 84114-4820

Phone: (801) 536-4000
FAX: (801) 536-4099

Fugitive Dust Control Plan Violation Report

When a source is found in violation of R307-309-3 or in violation of the Fugitive Dust Control Plan, the source must submit a report to the Executive Secretary within 15 days after receiving a Notice of Violation. The report must include the following information:

1. Name and address of dust source.
2. Time and duration of dust episode.
3. Meteorological conditions during the dust episode.
4. Total number and type of fugitive dust activities and dust producing equipment within each operation boundary. If no change has occurred from the existing dust control plan, the source should state that the activity/equipment is the same.
5. Fugitive dust activities or dust producing equipment that caused a violation of R-307-309-3 or the source's dust control plan.
6. Reasons for failing to control dust from the dust generating activity or equipment.
7. New and/or additional fugitive dust control strategies necessary to achieve compliance with R307-309-3, 4, 5, 6, or 7.
8. If it can not be demonstrated that the current approved Dust Control Plan can result in compliance with R307-309-3 through 7, the Dust Control Plan must be revised so as to demonstrate compliance with 307-309-3 through 7. Within 30 days of receiving a fugitive dust Notice of Violation, the source must submit the revised Plan to the Executive Secretary for review and approval.

Submit the Dust Control Plan to:

Executive Secretary	Phone: (801) 536-4000
Utah Air Quality Board	FAX: (801) 536-4099
POB 144820	
15 North 1950 West	
Salt Lake City, Utah 84114-4820	

Attachments: DFCM Form FDR R-307-309, Rule 307-309

CONTRACTOR'S AGREEMENT

FOR:

THIS CONTRACTOR'S AGREEMENT, made and entered into this ____ day of _____, 20__, by and between the DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT, hereinafter referred to as "DFCM", and _____, incorporated in the State of _____ and authorized to do business in the State of Utah, hereinafter referred to as "Contractor", whose address is _____.

WITNESSETH: WHEREAS, DFCM intends to have Work performed at _____.

WHEREAS, Contractor agrees to perform the Work for the sum stated herein.

NOW, THEREFORE, DFCM and Contractor for the consideration provided in this Contractor's Agreement, agree as follows:

ARTICLE 1. SCOPE OF WORK. The Work to be performed shall be in accordance with the Contract Documents prepared by _____ and entitled "_____"

The DFCM General Conditions ("General Conditions") dated May 25, 2005 on file at the office of DFCM and available on the DFCM website, are hereby incorporated by reference as part of this Agreement and are included in the specifications for this Project. All terms used in this Contractor's Agreement shall be as defined in the Contract Documents, and in particular, the General Conditions.

The Contractor Agrees to furnish labor, materials and equipment to complete the Work as required in the Contract Documents which are hereby incorporated by reference. It is understood and agreed by the parties hereto that all Work shall be performed as required in the Contract Documents and shall be subject to inspection and approval of DFCM or its authorized representative. The relationship of the Contractor to the DFCM hereunder is that of an independent Contractor.

ARTICLE 2. CONTRACT SUM. The DFCM agrees to pay and the Contractor agrees to accept in full performance of this Contractor's Agreement, the sum of _____ DOLLARS AND NO CENTS (\$_____.00), which is the base bid, and which sum also includes the cost of a 100% Performance Bond and a 100%

CONTRACTOR'S AGREEMENT
PAGE NO. 2

Payment Bond as well as all insurance requirements of the Contractor. Said bonds have already been posted by the Contractor pursuant to State law. The required proof of insurance certificates have been delivered to DFCM in accordance with the General Conditions before the execution of this Contractor's Agreement.

ARTICLE 3. TIME OF COMPLETION AND DELAY REMEDY. The Work shall be Substantially Complete within _____ (____) calendar days after the date of the Notice to Proceed. Contractor agrees to pay liquidated damages in the amount of \$_____ per day for each day after expiration of the Contract Time until the Contractor achieves Substantial Completion in accordance with the Contract Documents, if Contractor's delay makes the damages applicable. The provision for liquidated damages is: (a) to compensate the DFCM for delay only; (b) is provided for herein because actual damages can not be readily ascertained at the time of execution of this Contractor's Agreement; (c) is not a penalty; and (d) shall not prevent the DFCM from maintaining Claims for other non-delay damages, such as costs to complete or remedy defective Work.

No action shall be maintained by the Contractor, including its or Subcontractor or suppliers at any tier, against the DFCM or State of Utah for damages or other claims due to losses attributable to hindrances or delays from any cause whatsoever, including acts and omissions of the DFCM or its officers, employees or agents, except as expressly provided in the General Conditions. The Contractor may receive a written extension of time, signed by the DFCM, in which to complete the Work under this Contractor's Agreement in accordance with the General Conditions.

ARTICLE 4. CONTRACT DOCUMENTS. The Contract Documents consist of this Contractor's Agreement, the Conditions of the Contract (DFCM General Conditions, Supplementary and other Conditions), the Drawings, Specifications, Addenda and Modifications. The Contract Documents shall also include the bidding documents, including the Notice to Contractors, Instructions to Bidders/Proposers and the Bid/Proposal, to the extent not in conflict therewith and other documents and oral presentations that are documented as an attachment to the contract.

All such documents are hereby incorporated by reference herein. Any reference in this Contractor's Agreement to certain provisions of the Contract Documents shall in no way be construed as to lessen the importance or applicability of any other provisions of the Contract Documents.

ARTICLE 5. PAYMENT. The DFCM agrees to pay the Contractor from time to time as the Work progresses, but not more than once each month after the date of Notice to Proceed, and only upon Certificate of the A/E for Work performed during the preceding calendar month, ninety-five percent (95%) of the value of the labor performed and ninety-five percent (95%) of the value of materials furnished in place or on the site. The Contractor agrees to furnish to the DFCM invoices for materials purchased and on the site but not installed, for which the Contractor requests payment and agrees to

safeguard and protect such equipment or materials and is responsible for safekeeping thereof and if such be stolen, lost or destroyed, to replace same.

Such evidence of labor performed and materials furnished as the DFCM may reasonably require shall be supplied by the Contractor at the time of request for Certificate of Payment on account. Materials for which payment has been made cannot be removed from the job site without DFCM's written approval. Five percent (5%) of the earned amount shall be retained from each monthly payment. The retainage, including any additional retainage imposed and the release of any retainage, shall be in accordance with UCA 13-8-5 as amended. Contractor shall also comply with the requirements of UCA 13-8-5, including restrictions of retainage regarding subcontractors and the distribution of interest earned on the retention proceeds. The DFCM shall not be responsible for enforcing the Contractor's obligations under State law in fulfilling the retention law requirements with subcontractors at any tier.

ARTICLE 6. INDEBTEDNESS. Before final payment is made, the Contractor must submit evidence satisfactory to the DFCM that all payrolls, materials bills, subcontracts at any tier and outstanding indebtedness in connection with the Work have been properly paid. Final Payment will be made after receipt of said evidence, final acceptance of the Work by the DFCM as well as compliance with the applicable provisions of the General Conditions.

Contractor shall respond immediately to any inquiry in writing by DFCM as to any concern of financial responsibility and DFCM reserves the right to request any waivers, releases or bonds from Contractor in regard to any rights of Subcontractors (including suppliers) at any tier or any third parties prior to any payment by DFCM to Contractor.

ARTICLE 7. ADDITIONAL WORK. It is understood and agreed by the parties hereto that no money will be paid to the Contractor for additional labor or materials furnished unless a new contract in writing or a Modification hereof in accordance with the General Conditions and the Contract Documents for such additional labor or materials has been executed. The DFCM specifically reserves the right to modify or amend this Contractor's Agreement and the total sum due hereunder either by enlarging or restricting the scope of the Work.

ARTICLE 8. INSPECTIONS. The Work shall be inspected for acceptance in accordance with the General Conditions.

ARTICLE 9. DISPUTES. Any dispute, PRE or Claim between the parties shall be subject to the provisions of Article 7 of the General Conditions. DFCM reserves all rights to pursue its rights and remedies as provided in the General Conditions.

ARTICLE 10. TERMINATION, SUSPENSION OR ABANDONMENT. This Contractor's Agreement may be terminated, suspended or abandoned in accordance with the General Conditions.

ARTICLE 11. DFCM'S RIGHT TO WITHHOLD CERTAIN AMOUNT AND MAKE USE THEREOF. The DFCM may withhold from payment to the Contractor such amount as, in DFCM's judgment, may be necessary to pay just claims against the Contractor or Subcontractor at any tier for labor and services rendered and materials furnished in and about the Work. The DFCM may apply such withheld amounts for the payment of such claims in DFCM's discretion. In so doing, the DFCM shall be deemed the agent of Contractor and payment so made by the DFCM shall be considered as payment made under this Contractor's Agreement by the DFCM to the Contractor. DFCM shall not be liable to the Contractor for any such payment made in good faith. Such withholdings and payments may be made without prior approval of the Contractor and may be also be prior to any determination as a result of any dispute, PRE, Claim or litigation.

ARTICLE 12. INDEMNIFICATION. The Contractor shall comply with the indemnification provisions of the General Conditions.

ARTICLE 13. SUCCESSORS AND ASSIGNMENT OF CONTRACT. The DFCM and Contractor, respectively bind themselves, their partners, successors, assigns and legal representatives to the other party to this Agreement, and to partners, successors, assigns and legal representatives of such other party with respect to all covenants, provisions, rights and responsibilities of this Contractor's Agreement. The Contractor shall not assign this Contractor's Agreement without the prior written consent of the DFCM, nor shall the Contractor assign any moneys due or to become due as well as any rights under this Contractor's Agreement, without prior written consent of the DFCM.

ARTICLE 14. RELATIONSHIP OF THE PARTIES. The Contractor accepts the relationship of trust and confidence established by this Contractor's Agreement and covenants with the DFCM to cooperate with the DFCM and A/E and use the Contractor's best skill, efforts and judgment in furthering the interest of the DFCM; to furnish efficient business administration and supervision; to make best efforts to furnish at all times an adequate supply of workers and materials; and to perform the Work in the best and most expeditious and economic manner consistent with the interests of the DFCM.

ARTICLE 15. AUTHORITY TO EXECUTE AND PERFORM AGREEMENT. Contractor and DFCM each represent that the execution of this Contractor's Agreement and the performance thereunder is within their respective duly authorized powers.

ARTICLE 16. ATTORNEY FEES AND COSTS. Except as otherwise provided in the dispute resolution provisions of the General Conditions, the prevailing party shall be entitled to reasonable attorney fees and costs incurred in any action in the District Court and/or appellate body to enforce this Contractor's Agreement or recover damages or any other action as a result of a breach thereof.

CONTRACTOR'S AGREEMENT
PAGE NO. 5

IN WITNESS WHEREOF, the parties hereto have executed this Contractor's Agreement on the day and year stated hereinabove.

CONTRACTOR: _____

Signature Date

Title: _____

State of _____)
County of _____)

Please type/print name clearly

On this ____ day of _____, 20____, personally appeared before me, _____, whose identity is personally known to me (or proved to me on the basis of satisfactory evidence) and who by me duly sworn (or affirmed), did say that he (she) is the _____ (title or office) of the firm and that said document was signed by him (her) in behalf of said firm.

(SEAL)

Notary Public

My Commission Expires _____

APPROVED AS TO AVAILABILITY
OF FUNDS:

Financial Manager, Date
Division of Facilities Construction
and Management

**DIVISION OF FACILITIES
CONSTRUCTION AND MANAGEMENT**

Manager - Date
Capital _____

APPROVED AS TO FORM:
ATTORNEY GENERAL
May 25, 2005
By: Alan S. Bachman
Asst Attorney General

APPROVED FOR EXPENDITURE:

Division of Finance Date

PERFORMANCE BOND
(Title 63, Chapter 56, U. C. A. 1953, as Amended)

That _____ hereinafter referred to as the "Principal" and _____, a corporation organized and existing under the laws of the State of _____, with its principal office in the City of _____ and authorized to transact business in this State and U. S. Department of the Treasury Listed (Circular 570, Companies Holding Certificates of Authority as Acceptable Securities on Federal Bonds and as Acceptable Reinsuring Companies); hereinafter referred to as the "Surety," are held and firmly bound unto the State of Utah, hereinafter referred to as the "Obligee," in the amount of _____ DOLLARS (\$ _____) for the payment whereof, the said Principal and Surety bind themselves and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written Contract with the Obligee, dated the _____ day of _____, 20____, to construct _____ in the County of _____, State of Utah, Project No. _____, for the approximate sum of _____ Dollars (\$ _____), which Contract is hereby incorporated by reference herein.

NOW, THEREFORE, the condition of this obligation is such that if the said Principal shall faithfully perform the Contract in accordance with the Contract Documents including, but not limited to, the Plans, Specifications and conditions thereof, the one year performance warranty, and the terms of the Contract as said Contract may be subject to Modifications or changes, then this obligation shall be void; otherwise it shall remain in full force and effect.

No right of action shall accrue on this bond to or for the use of any person or corporation other than the state named herein or the heirs, executors, administrators or successors of the Owner.

The parties agree that the dispute provisions provided in the Contract Documents apply and shall constitute the sole dispute procedures of the parties.

PROVIDED, HOWEVER, that this Bond is executed pursuant to the Provisions of Title 63, Chapter 56, Utah Code Annotated, 1953, as amended, and all liabilities on this Bond shall be determined in accordance with said provisions to the same extent as if it were copied at length herein.

IN WITNESS WHEREOF, the said Principal and Surety have signed and sealed this instrument this _____ day of _____, 20____.

WITNESS OR ATTESTATION:

PRINCIPAL:

By: _____
(Seal)

Title: _____

WITNESS OR ATTESTATION:

SURETY:

By: _____
Attorney-in-Fact (Seal)

STATE OF _____)
) ss.
COUNTY OF _____)

On this _____ day of _____, 20____, personally appeared before me _____, whose identity is personally known to me or proved to me on the basis of satisfactory evidence, and who, being by me duly sworn, did say that he/she is the Attorney in-fact of the above-named Surety Company and that he/she is duly authorized to execute the same and has complied in all respects with the laws of Utah in reference to becoming sole surety upon bonds, undertakings and obligations, and that he/she acknowledged to me that as Attorney-in-fact executed the same.

Subscribed and sworn to before me this _____ day of _____, 20____.

My commission expires: _____

Resides at: _____

NOTARY PUBLIC

Agency: _____
Agent: _____
Address: _____
Phone: _____

Approved As To Form: May 25, 2005
By Alan S. Bachman, Asst Attorney General

PAYMENT BOND

(Title 63, Chapter 56, U. C. A. 1953, as Amended)

KNOW ALL PERSONS BY THESE PRESENTS:

That _____ hereinafter referred to as the "Principal," and _____, a corporation organized and existing under the laws of the State of _____ authorized to do business in this State and U. S. Department of the Treasury Listed (Circular 570, Companies Holding Certificates of Authority as Acceptable Securities on Federal Bonds and as Acceptable Reinsuring Companies); with its principal office in the City of _____, hereinafter referred to as the "Surety," are held and firmly bound unto the State of Utah hereinafter referred to as the "Obligee," in the amount of _____ Dollars (\$ _____) for the payment whereof, the said Principal and Surety bind themselves and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written Contract with the Obligee, dated the _____ day of _____, 20____, to construct _____ in the County of _____, State of Utah, Project No. _____ for the approximate sum of _____ Dollars (\$ _____), which contract is hereby incorporated by reference herein.

NOW, THEREFORE, the condition of this obligation is such that if the said Principal shall pay all claimants supplying labor or materials to Principal or Principal's Subcontractors in compliance with the provisions of Title 63, Chapter 56, of Utah Code Annotated, 1953, as amended, and in the prosecution of the Work provided for in said Contract, then, this obligation shall be void; otherwise it shall remain in full force and effect.

That said Surety to this Bond, for value received, hereby stipulates and agrees that no changes, extensions of time, alterations or additions to the terms of the Contract or to the Work to be performed thereunder, or the specifications or drawings accompanying same shall in any way affect its obligation on this Bond, and does hereby waive notice of any such changes, extensions of time, alterations or additions to the terms of the Contract or to the Work or to the specifications or drawings and agrees that they shall become part of the Contract Documents.

PROVIDED, HOWEVER, that this Bond is executed pursuant to the provisions of Title 63, Chapter 56, Utah Code Annotated, 1953, as amended, and all liabilities on this Bond shall be determined in accordance with said provisions to the same extent as if it were copied at length herein.

IN WITNESS WHEREOF, the said Principal and Surety have signed and sealed this instrument this _____ day of _____, 20____.

WITNESS OR ATTESTATION:

PRINCIPAL:

By: _____ (Seal)

Title: _____

WITNESS OR ATTESTATION:

SURETY:

By: _____ Attorney-in-Fact (Seal)

STATE OF _____)
) ss.
COUNTY OF _____)

On this _____ day of _____, 20____, personally appeared before me _____, whose identity is personally known to me or proved to me on the basis of satisfactory evidence, and who, being by me duly sworn, did say that he/she is the Attorney-in-fact of the above-named Surety Company, and that he/she is duly authorized to execute the same and has complied in all respects with the laws of Utah in reference to becoming sole surety upon bonds, undertakings and obligations, and that he/she acknowledged to me that as Attorney-in-fact executed the same.

Subscribed and sworn to before me this _____ day of _____, 20____.

My commission expires: _____

Resides at: _____

NOTARY PUBLIC

Agency: _____
Agent: _____
Address: _____
Phone: _____

Approved As To Form: May 25, 2005
By Alan S. Bachman, Asst Attorney General



Division of Facilities Construction and Management

CHANGE ORDER # _____

CONTRACTOR: _____

AGENCY OR INSTITUTION: _____

PROJECT NAME: _____

PROJECT NUMBER: _____

CONTRACT NUMBER: _____

ARCHITECT: _____

DATE: _____

CONSTRUCTION CHANGE DIRECTIVE NO.	PROPOSAL REQUEST NO.	AMOUNT		DAYS	
		INCREASE	DECREASE	INCREASE	DECREASE

	Amount	Days	Date
ORIGINAL CONTRACT			
TOTAL PREVIOUS CHANGE ORDERS			
TOTAL THIS CHANGE ORDER			
ADJUSTED CONTRACT			

DFCM and Contractor agree that the terms, contract sum, scope of the Work and time specified in this Change Order shall constitute the full accord and satisfaction, and complete adjustment to the Contract and includes all direct and indirect costs and effects related to, incidental to, and/or reasonably implied from such change in the contract terms, sum, scope of the Work and time.

Contractor: _____

Date

Architect/Engineer: _____

Date

Agency or Institution: _____

Date

DFCM: _____

Date

Funding Verification: _____

Date

Page ____ of ____ page(s)



STATE OF UTAH - DEPARTMENT OF ADMINISTRATIVE SERVICES

Division of Facilities Construction and Management

DFCM

CERTIFICATE OF SUBSTANTIAL COMPLETION

PROJECT _____ PROJECT NO: _____

AGENCY/INSTITUTION _____

AREA ACCEPTED _____

The Work performed under the subject Contract has been reviewed on this date and found to be Substantially Completed as defined in the General Conditions; including that the construction is sufficiently completed in accordance with the Contract Documents, as modified by any change orders agreed to by the parties, so that the State of Utah can occupy the Project or specified area of the Project for the use for which it is intended.

The DFCM - (Owner) accepts the Project or specified area of the Project as Substantially Complete and will assume full possession of the Project or specified area of the Project at _____ (time) on _____ (date).

The DFCM accepts the Project for occupancy and agrees to assume full responsibility for maintenance and operation, including utilities and insurance, of the Project subject to the itemized responsibilities and/or exceptions noted below:

The Owner acknowledges receipt of the following closeout and transition materials:

☐ Record Drawings ☐ O & M Manuals ☐ Warranty Documents ☐ Completion of Training Requirements

A list of items to be completed or corrected (Punch List) is attached hereto. The failure to include an item on it does not alter the responsibility of the Contractor to complete all the Work in accordance with the Contract Documents, including authorized changes thereof. The amount of _____. (Twice the value of the punch list work) shall be retained to assure the completion of the punch list work.

The Contractor shall complete or correct the Work on the list of (Punch List) items appended hereto within _____ calendar days from the above date of issuance of this Certificate. If the list of items is not completed within the time allotted the Owner has the right to be compensated for the delays and/or complete the work with the help of independent contractor at the expense of the retained project funds. If the retained project funds are insufficient to cover the delay/completion damages, the Owner shall be promptly reimbursed for the balance of the funds needed to compensate the Owner.

CONTRACTOR (include name of firm) by: _____
(Signature) DATE

A/E (include name of firm) by: _____
(Signature) DATE

USING INSTITUTION OR AGENCY by: _____
(Signature) DATE

DFCM (Owner) by: _____
(Signature) DATE

4110 State Office Building, Salt Lake City, Utah 84114
telephone 801-538-3018 • facsimile 801-538-3267 • <http://dfcm.utah.gov>

cc: Parties Noted
DFCM, Director



Technical Specification For

Vernal Liquor Store
New Lift and Access Door
DFCM Project #

02 May 2005

P+A Architects
821 Kensington Avenue
Salt Lake City, Utah 84105



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NOT USED	NONE
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NOT USED	NONE
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DIVISION 9	FINISHES
NOT USED	NONE
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NOT USED	NONE
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NOT USED	NONE
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**Vernal Liquor Store
New Scissors Lift and Door Replacement
Division of Facilities Construction Management**

SECTION 01010 - SUMMARY OF WORK

1.1 GENERAL

- A. The Project consists of constructing a new recessed scissors lift and to provide a new access door to the existing Vernal Liquor Store. The new lift will have a pre-cast catch basin located at the bottom of the lift pit that has a storm drain line that runs to a pre-cast concrete sump. Also, included in the work is the removal of an existing hollow metal door and frame system, saw cutting the existing opening and installing a new hollow metal door and frame system. In addition to the work listed above will be new concrete pavement, curb wall and water way.
 - 1. Project Location: 675 East Main Street, Vernal, Utah
 - 2. Owner: Division of Facilities Construction & Management
- B. Contract Documents, dated May 2nd 2005, were prepared for the project by P+A architects. located at 821 East Kensington Avenue, Salt Lake City, Utah
- C. The Work will be constructed under a single prime contract.
- D. Use of the Site: Limit use of premises to areas indicated on construction documents. Do not disturb portions of the site beyond the areas indicated.
 - 1. Allow for Owner occupancy and use by the public.
 - 2. Keep driveways and entrances clear. Do not use these areas for parking or material storage. Schedule deliveries to minimize on-site storage of materials and equipment.

1.2 CONTRACTOR USE OF PREMISES

- A. General: During the construction period, the Contractor shall have use of the premises for construction operations as shown on construction documents. Parking and contractor staging at the site is limited and will be reviewed at the pre bid conference.
- B. Use of the Site: Limit use of the premises to work in areas indicated. Confine operations to areas within contract limits indicated. Do not disturb portions of the site beyond the areas in which the Work is indicated.
 - 1. Driveways and Entrances: Keep driveways and entrances serving the premises clear and available to other occupants and emergency vehicles at all times. Do not use these areas for parking or storage of materials. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

END OF SECTION 01010

Vernal Liquor Store
New Scissors Lift and Door Replacement
Division of Facilities Construction Management

SECTION 01027 - APPLICATIONS FOR PAYMENT

1.1 GENERAL

- A. Coordinate the Schedule of Values and Applications for Payment with the Contractor's Construction Schedule, Submittal Schedule, and List of Subcontracts.
- B. Schedule of Values: Coordinate preparation of the Schedule of Values with preparation of the Contractor's Construction Schedule.
 - 1. Correlate line items in the Schedule of Values with other required administrative schedules and forms, including:
 - a. Contractor's Construction Schedule.
 - b. Application for Payment forms, including Continuation Sheets.
 - c. List of subcontractors.
 - d. List of products.
 - e. List of principal suppliers and fabricators.
 - f. Schedule of submittals.
 - 2. Submit the Schedule of Values at the earliest possible date but no later than 7 days before the date scheduled for submittal of the initial Applications for Payment.
- C. Format and Content: Use the Project Manual table of contents as a guide to establish the format for the Schedule of Values. Provide at least one line item for each Specification Section.
 - 1. Include the following Project identification:
 - a. Project name and location.
 - b. Name of Architect.
 - c. Project number.
 - d. Contractor's name and address.
 - e. Date of submittal.
 - 2. Arrange the Schedule of Values in tabular form with separate columns to indicate the following for each item listed:
 - a. Related Specification Section or Division.
 - b. Description of Work.
 - c. Name of subcontractor.
 - d. Name of manufacturer or fabricator.
 - e. Name of supplier.
 - f. Change Orders (numbers) that affect value.
 - g. Dollar value.
 - h. Percentage of Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.
 - 3. Provide a breakdown of the Contract Sum in sufficient detail to facilitate evaluation of Applications for Payment. Break subcontract amounts down into several line items. Round amounts to nearest whole dollar; the total shall equal the Contract Sum.

Vernal Liquor Store
New Scissors Lift and Door Replacement
Division of Facilities Construction Management

4. Provide a separate line item for each part of the Work where Applications for Payment may include materials or equipment, purchased or fabricated and stored, but not yet installed.
 5. Provide separate line items for initial cost of the materials, for each subsequent stage of completion, and for total installed value.
 6. Show line items for indirect costs and margins on costs only when such items are listed individually in Applications for Payment. Each item in the Schedule of Values and Applications for Payment shall be complete. Include the total cost and proportionate share of general overhead and profit margin for each item.
 - a. Temporary facilities and items that are not direct cost of work-in-place may be shown as separate line items or distributed as general overhead expense.
 7. Update and resubmit the Schedule of Values when Change Orders or Construction Change Directives change the Contract Sum.
- D. Applications for Payment shall be consistent with previous applications and payments as certified by the Owner and paid for by the Owner.
- E. Payment-Application Times: Payment dates are indicated in the Agreement. The period covered by each application is the period indicated in the Agreement.
- F. Payment-Application Forms: Use AIA Document G702 and Continuation Sheets G703 as the form for Applications for Payment.
- G. Application Preparation: Complete every entry, including notarization and execution by a person authorized to sign on behalf of the Contractor. The owner will return incomplete applications without action.
1. Entries shall match data on the Schedule of Values and the Contractor's Construction Schedule. Use updated schedules if revisions were made.
 2. Include amounts of Change Orders and Construction Change Directives issued prior to the last day of the construction period covered by the application.
- H. Transmittal: Submit 3 executed original copies of each Application for Payment to the owner within 24 hours. One copy shall be complete, including waivers of lien and similar attachments.
1. Transmit each copy with a transmittal listing attachments and recording appropriate information related to the application.
- I. Waivers of Mechanics Lien: With each Application for Payment, submit waivers of lien from every entity who may file a lien arising out of the Contract and related to the Work covered by the payment.
1. Submit partial waivers on each item for the amount requested, prior to deduction for retainage, on each item.
 2. When an application shows completion of an item, submit final or full waivers.
 3. Submit each Application for Payment with Contractor's waiver of lien for the period of construction covered by the application.
 - a. Submit final Applications for Payment with final waivers from every entity involved with performance of the Work covered by the application who may file a lien.

**Vernal Liquor Store
New Scissors Lift and Door Replacement
Division of Facilities Construction Management**

4. Waiver Forms: Submit waivers of lien on forms, and executed in a manner, acceptable to the Owner.
- J. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of the first Application for Payment include the following:
 1. List of subcontractors.
 2. List of principal suppliers and fabricators.
 3. Schedule of Values.
 4. Contractor's Construction Schedule (preliminary if not final).
 5. Submittal Schedule (preliminary if not final).
 6. List of Contractor's staff assignments.
 7. Copies of building permits.
 8. Copies of licenses from governing authorities.
 9. Certificates of insurance and insurance policies.
 10. Performance and payment bonds.
- K. Application for Payment at Substantial Completion: Following issuance of the Certificate of Substantial Completion, submit an Application for Payment. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
 1. Administrative actions and submittals that shall precede or coincide with this application include the following:
 - a. Occupancy permits.
 - b. Warranties and maintenance agreements.
 - c. Maintenance instructions.
 - d. Meter readings.
 - e. Changeover information related to Owner's occupancy.
 - f. Final cleaning.
 - g. Application for reduction of retainage and consent of surety.
- L. Final Payment Application: Administrative actions and submittals that must precede or coincide with submittal of the final Application for Payment include the following:
 1. Completion of Project closeout requirements.
 2. Completion of items specified for completion after Substantial Completion.
 3. Transmittal of Project construction records to the Owner.
 4. Removal of temporary facilities and services.
 5. Change of door locks to Owner's access.

1.2 PRODUCTS (Not Applicable)

1.3 EXECUTION (Not Applicable)

END OF SECTION 01027

Vernal Liquor Store
New Scissors Lift and Door Replacement
Division of Facilities Construction Management

SECTION 01040 - COORDINATION

1.1 GENERAL

- A. This Section includes requirements for coordinating construction operations including, but not necessarily limited to, the following:
 - 1. Coordination drawings.
 - 2. Administrative and supervisory personnel.
 - 3. Cleaning and protection.

1.2 COORDINATION

- A. Coordinate construction to assure efficient and orderly installation of each part of the Work. Coordinate operations that depend on each other for proper installation, connection, and operation.
 - 1. Schedule operations in the sequence required to obtain the best results where installation of one part depends on installation of other components, before or after its own installation.
 - 2. Coordinate installation of different components to assure maximum accessibility for maintenance, service, and repair.
 - 3. Make provisions to accommodate items scheduled for later installation.
- B. Where necessary, prepare memoranda for distribution to each party involved, outlining procedures required for coordination. Include such items as required notices and reports.
 - 1. Prepare similar memoranda for the Owner and separate contractors where coordination of their work is required.
- C. Administrative Procedures: Coordinate scheduling and timing of required procedures with other activities to avoid conflicts and assure orderly progress. Such activities include, but are not limited to, the following:
 - 1. Preparation of schedules.
 - 2. Delivery and processing of submittals.
 - 3. Progress meetings.
 - 4. Project closeout activities.
- D. Conservation: Coordinate construction to assure that operations are carried out with consideration for conservation of energy, water, and materials.
- E. Staff Names: Within 15 days of commencement of construction, submit a list of the Contractor's staff assignments, including the superintendent and other subcontractors at the Project. Identify individuals and their responsibilities. List their addresses and telephone numbers.

1.3 PRODUCTS (Not Applicable)

1.4 EXECUTION

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- A. Inspection of Conditions: Require Installers of major components to inspect substrate and conditions under which Work is to be performed. Do not proceed until unsatisfactory conditions have been corrected.
- B. Clean and protect construction in progress and adjoining materials, during handling and installation. Apply protective covering to assure protection from damage.
- C. Clean and maintain completed construction as necessary through the construction period. Adjust and lubricate operable components to assure operability without damaging effects.
- D. Limiting Exposures: Supervise construction to assure that no part is subject to harmful, dangerous, or damaging exposure. Such exposures include, but are not limited to, the following:
 - 1. Excessive static or dynamic loading.
 - 2. Excessive internal or external pressures.
 - 3. Excessively high or low temperatures.
 - 4. Water or ice.
 - 5. Solvents and chemicals.
 - 6. Abrasion.
 - 7. Soiling, staining, and corrosion.
 - 8. Combustion.
 - 9. Wind.

END OF SECTION 01040

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SECTION 01045 - CUTTING AND PATCHING

1.1 GENERAL

- A. Cutting and Patching Proposal: Submit a proposal describing procedures in advance of the time cutting and patching will be performed. Request approval to proceed. Include the following:
 - 1. Describe extent of cutting and patching. Show how it will be performed.
 - 2. Describe changes to existing construction. Include changes to structural elements and operating components.
 - 3. List products to be used and firms that will perform Work.
 - 4. Indicate dates when cutting and patching will be performed.
 - 5. Utilities: List utilities that will be disturbed or relocated and those that will be temporarily out-of-service. Indicate how long service will be disrupted.
 - 6. Where cutting and patching involves adding reinforcement to structural elements, submit details and engineering calculations showing integration of reinforcement with the original structure.
 - 7. Approval to proceed does not waive the owner's right to later require complete removal and replacement of unsatisfactory work.
- B. Requirements for Structural Work: Do not cut and patch structural elements in a manner that would change their load-carrying capacity or load-deflection ratio.
 - 1. Obtain approval before cutting and patching the following structural elements:
 - a. Foundation construction.
 - b. Bearing and retaining walls.
- C. Operational Limitations: Do not cut and patch operating elements in a manner that would reduce their capacity to perform as intended. Do not cut and patch operating elements in a manner that would increase maintenance or decrease operational life or safety.
- D. Visual Requirements: Do not cut and patch exposed construction in a manner that would, in the Architect's opinion, reduce the building's aesthetic qualities. Do not cut and patch in a manner that would result in visual evidence of cutting and patching. Remove and replace construction cut and patched in a visually unsatisfactory manner.

1.2 PRODUCTS

- A. Use materials identical to existing materials. Use materials that visually match adjacent surfaces to the fullest extent possible if identical materials are unavailable. Use materials whose performance will equal that of existing materials.

1.3 EXECUTION

- A. Examine surfaces to be cut and patched and conditions under which work is to be performed before cutting. If unsafe or unsatisfactory conditions are encountered, take corrective action.

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1. Before proceeding, meet with parties involved. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.
- B. Temporary Support: Provide temporary support of work to be cut.
- C. Protection: Protect existing construction to prevent damage. Provide protection from adverse weather conditions for portions that might be exposed during cutting and patching operations.
- D. Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.
- E. Avoid cutting pipe, conduit, or ductwork serving the building but scheduled to be removed or relocated until provisions have been made to bypass them.
- F. Performance: Employ skilled workmen. Proceed at the earliest feasible time and complete without delay.
 1. Cut construction to install other components or perform other construction and subsequent fitting and patching required to restore surfaces to their original condition.
- G. Cutting: Cut using methods that will not damage elements retained or adjoining construction. Comply with the original Installer's recommendations.
 1. Use hand or small power tools designed for sawing or grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
 2. To avoid marring finished surfaces, cut or drill from the exposed or finished side into concealed surfaces.
 3. Cut through concrete and masonry using a cutting machine, such as a Carborundum saw or a diamond-core drill.
 4. Where services are required to be removed, relocated, or abandoned, by-pass utility services before cutting. Cut-off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal the remaining pipe or conduit to prevent entrance of moisture or other foreign matter after by-passing and cutting.
- H. Patching: Patch with durable seams that are as invisible as possible. Comply with specified tolerances.
 1. Inspect and test patched areas to demonstrate integrity of the installation.
 2. Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
 3. Where removing walls or partitions extends one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform color and appearance.
- I. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar items. Clean piping, conduit, and similar features before applying paint or finishing materials. Restore damaged pipe covering to its original condition.

END OF SECTION 01045

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SECTION 01400 - QUALITY CONTROL

1.1 GENERAL

- A. Quality-control services include inspections, tests, and related actions, including reports performed by Contractor, by independent agencies, and by governing authorities.
- B. Contractor Responsibilities: Unless they are the responsibility of another entity, Contractor shall provide inspections and tests specified elsewhere and required by authorities having jurisdiction. Costs for these services are included in the Contract Sum.
 - 1. Where inspections and tests are the Contractor's responsibility, the Contractor shall employ and pay a qualified independent testing agency to perform these services. Costs for these services are included in the Contract Sum.
- C. Retesting: The Contractor is responsible for retesting where results of inspections and tests prove unsatisfactory and indicate noncompliance with requirements.
 - 1. The cost of retesting is the Contractor's responsibility where tests performed indicated noncompliance with requirements.
- D. Auxiliary Services: Cooperate with agencies performing inspections and tests. Provide auxiliary services as requested. Notify the agency in advance of operations to permit assignment of personnel. Auxiliary services include the following:
 - 1. Providing access to the Work.
 - 2. Furnishing incidental labor and facilities to assist inspections and tests.
 - 3. Taking adequate quantities of representative samples of materials that require testing or assisting the agency in taking samples.
 - 4. Providing facilities for storage and curing of test samples.
 - 5. Delivering samples to testing laboratories.
 - 6. Providing preliminary design mix proposed for use for materials mixes that require control by the testing agency.
 - 7. Providing security and protection of samples and test equipment.
- E. Duties of the Testing Agency: The testing agency shall cooperate with the owner and the Contractor in performing its duties. The agency shall provide qualified personnel to perform inspections and tests.
 - 1. The agency shall notify the owner and the Contractor of irregularities or deficiencies observed in the Work during performance of its services.
 - 2. The agency shall not release, revoke, alter, or enlarge requirements or approve or accept any portion of the Work.
 - 3. The agency shall not perform duties of the Contractor.
- F. Coordination: Coordinate activities to accommodate services with a minimum of delay. Avoid removing and replacing construction to accommodate inspections and tests.
 - 1. The Contractor is responsible for scheduling inspections, tests, taking samples, and similar activities.

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- G. Submittals: The testing agency shall submit a certified written report, in duplicate, of each inspection and test to the Owner. If the Contractor is responsible for the service, submit a certified written report, in duplicate, of each inspection or test through the Contractor.
1. Submit additional copies of each report to the governing authority, when the authority so directs.
 2. Report Data: Reports of each inspection, test, or similar service include, but are not limited to, the following:
 - a. Date of issue.
 - b. Project title and number.
 - c. Name, address, and telephone number of testing agency.
 - d. Dates and locations of samples and tests or inspections.
 - e. Names of individuals making the inspection or test.
 - f. Designation of the Work and test method.
 - g. Identification of product and Specification Section.
 - h. Complete inspection or test data.
 - i. Test results and an interpretation of test results.
 - j. Ambient conditions at the time of sample taking and testing.
 - k. Comments or professional opinion on whether inspected or tested Work complies with requirements.
 - l. Name and signature of laboratory inspector.
 - m. Recommendations on retesting.
- H. Qualifications for Service Agencies: Engage inspection and testing service agencies that are prequalified as complying with the American Council of Independent Laboratories' "Recommended Requirements for Independent Laboratory Qualification" and that specialize in the types of inspections and tests to be performed.
1. Each agency shall be authorized by authorities having jurisdiction to operate in the state where the Project is located.

1.2 PRODUCTS (Not Applicable)

1.3 EXECUTION

- A. Repair and Protection: Upon completion of inspection, testing, and sample taking, repair damaged construction. Restore substrates and finishes. Comply with Division 1 Section "Cutting and Patching."
- B. Protect construction exposed by or for quality-control service activities, and protect repaired construction.
- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for inspection and testing.

END OF SECTION 01400

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SECTION 01500 - CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

1.1 GENERAL

- A. Summary: This Section specifies construction facilities and temporary controls including temporary utilities, support facilities, and security and protection facilities.
- B. Regulations: Comply with industry standards and applicable laws and regulations of authorities having jurisdiction including, but not limited to, the following:
 - 1. Building code requirements.
 - 2. Health and safety regulations.
 - 3. Utility company regulations.
 - 4. Police, fire department, and rescue squad rules.
 - 5. Environmental protection regulations.
- C. Standards: Comply with NFPA 241 "Standard for Safeguarding Construction, Alterations, and Demolition Operations," ANSI A10 Series standards for "Safety Requirements for Construction and Demolition," and NECA Electrical Design Library "Temporary Electrical Facilities."
 - 1. Electrical Service: Comply with NEMA, NECA, and UL standards and regulations for temporary electric service. Install service in compliance with NFPA 70 "National Electric Code."

1.2 PRODUCTS

- A. Equipment: Provide new equipment. If acceptable to the Owner, the Contractor may use undamaged, previously used equipment in serviceable condition. Provide equipment suitable for use intended.
 - 1. Water Hoses: 3/4-inch (19-mm), heavy-duty, abrasion-resistant, flexible rubber hoses 100 feet (30 m) long. Provide adjustable shutoff nozzles at hose discharge.
 - 2. Electrical Outlets: Properly configured, NEMA-polarized outlets. Provide outlets equipped with ground-fault circuit interrupters, reset button, and pilot light for connection of power tools and equipment.
 - 3. Electrical Power Cords: Grounded extension cords. Use hard-service cords where exposed to abrasion and traffic.
 - 4. Lamps and Light Fixtures: General service incandescent lamps. Provide guard cages or tempered-glass enclosures where exposed to breakage. Provide exterior fixtures where exposed to moisture.
 - 5. Heating Units: Temporary heating units that have been tested and labeled by UL, FM, or another recognized trade association related to the type of fuel being consumed.
 - 6. Fire Extinguishers: Hand-carried, portable, UL-rated, Class A fire extinguishers for temporary offices and similar spaces. In other locations, provide hand-carried, portable, UL-rated, Class ABC, dry-chemical extinguishers or a combination of extinguishers of NFPA-recommended classes for the exposures.
 - a. Comply with NFPA 10 and NFPA 241 for classification, extinguishing agent, and size required by location and class of fire exposure.

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1.3 EXECUTION

- A. Installation, General: Use qualified personnel to install temporary facilities. Locate facilities where they will serve the Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required.
 - 1. Provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.
- B. Security and Protection Facilities Installation: Except for use of permanent fire protection as soon as available, do not change over from use of temporary security and protection facilities to permanent facilities until Substantial Completion.
 - 1. Temporary Fire Protection: Until permanent facilities supply fire-protection needs, install and maintain temporary fire-protection facilities of types needed to protect against controllable fire losses. Comply with NFPA 10 and NFPA 241.
 - a. Locate fire extinguishers where convenient and effective for their intended purpose. Maintain unobstructed access to fire extinguishers.
 - b. Store combustible materials in containers in fire-safe locations.
 - c. Prohibit smoking in hazardous fire-exposure areas.
 - d. Provide supervision of welding operations, combustion-type temporary heating units, and similar sources of fire ignition.
 - 2. Permanent Fire Protection: At the earliest date, complete installation of the permanent fire-protection facility and place into operation and use. Instruct key personnel on use of facilities.
 - 3. Environmental Protection: Operate temporary facilities and conduct construction in ways that comply with environmental regulations and minimize the possibility that air, waterways, and subsoil might be contaminated or polluted. Avoid use of tools and equipment that produce harmful noise. Restrict use of noise-making equipment to hours that will minimize complaints.
- C. Operation: Enforce discipline in use of temporary facilities. Limit availability to intended uses to minimize waste and abuse.

END OF SECTION 01500

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SECTION 01700 - CONTRACT CLOSEOUT

1.1 GENERAL

- A. Closeout requirements for specific construction activities are included in the appropriate Sections in Divisions 2 through 16.
- B. Substantial Completion: Before requesting inspection for certification of Substantial Completion, complete the following:
 - 1. In the Application for Payment that coincides with, or first follows, the date Substantial Completion is claimed, show 100 percent completion for the Work claimed as substantially complete.
 - a. Include supporting documentation for completion and an accounting of changes to the Contract Sum.
 - 2. Advise the Owner of pending insurance changeover requirements.
 - 3. Submit specific warranties, workmanship bonds, maintenance agreements, final certifications, and similar documents.
 - 4. Submit record drawings, maintenance manuals, final project photographs, damage or settlement surveys, property surveys, and similar final record information.
 - 5. Deliver tools, spare parts, extra stock, and similar items.
 - 6. Changeover locks and transmit keys to the Owner.
 - 7. Complete startup testing of systems and instruction of operation and maintenance personnel.
 - 8. Complete final cleanup requirements, including touchup painting.
 - 9. Touch up and repair and restore marred, exposed finishes.
- C. Inspection Procedures: On receipt of a request for inspection, the Project Manager will proceed or advise the Contractor of unfilled requirements. The Project Manager will prepare the Certificate of Substantial Completion following inspection or advise the Contractor of construction that must be completed or corrected before the certificate will be issued.
 - 1. The Project Manager will repeat inspection when requested and assured that the Work is substantially complete.
 - 2. Results of the completed inspection will form the basis of requirements for final acceptance.
- D. Final Acceptance: Before requesting inspection for certification of final acceptance and final payment, complete the following:
 - 1. Final payment request with releases and supporting documentation. Include insurance certificates where required.
 - 2. Submit a statement, accounting for changes to the Contract Sum.
 - 3. Submit a copy of the final inspection list stating that each item has been completed or otherwise resolved for acceptance.
 - 4. Submit consent of surety to final payment.
 - 5. Submit a final settlement statement.
 - 6. Submit evidence of continuing insurance coverage complying with insurance requirements.

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- E. Reinspection Procedure: The owner will reinspect the Work upon receipt of notice that the Work has been completed, except for items whose completion is delayed under circumstances acceptable to the owner.
 - 1. Upon completion of reinspection, the owner will prepare a certificate of final acceptance. If the Work is incomplete, the owner will advise the Contractor of Work that is incomplete or obligations that have not been fulfilled but are required.
 - 2. If necessary, reinspection will be repeated.
- F. Record Document Submittals: Do not use record documents for construction. Protect from loss in a secure location. Provide access to record documents for the owners's reference.
- G. Record Drawings: Maintain a set of prints of Contract Drawings and Shop Drawings. Mark the set to show the actual installation where the installation varies substantially from the Work as originally shown. Mark the drawing most capable of showing conditions fully and accurately. Give attention to concealed elements.
 - 1. Mark sets with red pencil. Use other colors to distinguish between variations in separate categories of the Work.
 - 2. Organize record drawing sheets into manageable sets. Bind with durable-paper cover sheets; print titles, dates, and other identification on the cover of each set.
- H. Record Specifications: Maintain one copy of the Project Manual, including addenda. Mark to show variations in Work performed in comparison with the text of the Specifications and modifications. Give attention to substitutions and selection of options and information on concealed construction. Note related record drawing information and Product Data.
 - 1. Upon completion of the Work, submit record Specifications to the owner for their records.
- I. Maintenance Manuals: Organize operation and maintenance data into sets of manageable size. Bind in individual, heavy-duty, **2-inch (51-mm)**, 3-ring, binders, with pocket folders for folded sheet information. Mark identification on front and spine of each binder. Include the following information:
 - 1. Copies of warranties.

1.2 PRODUCTS (Not Applicable)

1.3 EXECUTION

- A. Operation and Maintenance Instructions: Include a detailed review of the following items:
 - 1. Maintenance manuals.
- B. As part of instruction for operating equipment, demonstrate the following:
 - 1. Startup and shutdown.
 - 2. Noise and vibration adjustments.

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- C. Final Cleaning: Employ experienced cleaners for final cleaning. Clean each surface or unit to the condition expected in a normal, commercial building cleaning and maintenance program. Complete the following operations before requesting inspection for certification of Substantial Completion.
 - 1. Remove labels that are not permanent labels.
 - 2. Clean exposed finishes to a dust-free condition, free of stains, films, and foreign substances. Leave concrete floors broom clean.
 - 3. Wipe surfaces of electrical equipment. Remove excess lubrication. Clean light fixtures and lamps.
 - 4. Clean the site of rubbish, litter, and foreign substances. Sweep paved areas; remove stains, spills, and foreign deposits. Rake grounds to a smooth, even-textured surface.
- D. Removal of Protection: Remove temporary protection and facilities.
- E. Compliance: Comply with regulations of authorities having jurisdiction and safety standards for cleaning. Remove waste materials and dispose of lawfully.

END OF SECTION 01700

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SECTION 01740 - WARRANTIES

1.1 GENERAL

- A. Standard product warranties are preprinted written warranties published by individual manufacturers for particular products and are specifically endorsed by the manufacturer to the Owner.
- B. Special warranties are written warranties required by or incorporated in the Contract Documents, either to extend time limits provided by standard warranties or to provide greater rights for the Owner.
- C. Disclaimers and Limitations: Manufacturer's disclaimers and limitations on product warranties do not relieve the Contractor of the warranty on the Work that incorporates the products. Manufacturer's disclaimers and limitations on product warranties do not relieve suppliers, manufacturers, and subcontractors required to countersign special warranties with the Contractor.
- D. Related Damages and Losses: When correcting failed or damaged warranted construction, remove and replace construction that has been damaged as a result of such failure or must be removed and replaced to provide access for correction of warranted construction.
- E. Reinstatement of Warranty: When Work covered by a warranty has failed and been corrected by replacement or rebuilding, reinstate the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.
- F. Replacement Cost: Upon determination that Work covered by a warranty has failed, replace or rebuild the Work to an acceptable condition complying with requirements of the Contract Documents. The Contractor is responsible for the cost of replacing or rebuilding defective Work regardless of whether the Owner has benefited from use of the Work through a portion of its anticipated useful service life.
- G. Owner's Recourse: Expressed warranties made to the Owner are in addition to implied warranties and shall not limit the duties, obligations, rights, and remedies otherwise available under the law. Expressed warranty periods shall not be interpreted as limitations on the time in which the Owner can enforce such other duties, obligations, rights, or remedies.
 - 1. Rejection of Warranties: The Owner reserves the right to reject warranties and to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
 - 2. Where the Contract Documents require a special warranty, or similar commitment, the Owner reserves the right to refuse to accept the Work, until the Contractor presents evidence that entities required to countersign such commitments are willing to do so.
- H. Submit written warranties to the Architect prior to the date certified for Substantial Completion. If the Owner's Certificate of Substantial Completion designates a commencement date for warranties other than the date of Substantial Completion, submit written warranties upon request of the Owner's.
- I. When the Contract Documents require the Contractor, or the Contractor and a subcontractor, supplier or manufacturer to execute a special warranty, prepare a written document that contains appropriate terms and identification, ready for execution by the required parties. Submit a draft to the Owner for approval prior to final execution.

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1. Refer to Divisions 2 through 16 Sections for specific content requirements and particular requirements for submitting special warranties.
- J. Bind warranties and bonds in heavy-duty, commercial-quality, durable 3-ring, vinyl-covered loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch (115-by-280-mm) paper.
 1. Provide heavy paper dividers with celluloid covered tabs for each separate warranty. Mark the tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product, and the name, address, and telephone number of the Installer.
 2. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project title or name, and name of the Contractor.
 3. When warranted construction requires operation and maintenance manuals, provide additional copies of each required warranty, as necessary, for inclusion in each required manual.

1.2 PRODUCTS (Not Applicable)

1.3 EXECUTION

- A. Schedule: Provide warranties on products and installations as specified in the following Sections:

END OF SECTION 01740

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SECTION 02230 - SITE CLEARING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Clearing and grubbing.
 - 2. Topsoil stripping.
 - 3. Removing above-grade site improvements.
- B. Related Sections include the following:
 - 1. Division 1 Section "Construction Facilities and Temporary Controls" for temporary utilities, temporary construction and support facilities, temporary security and protection facilities, and environmental protection measures during site operations.
 - 2. Division 2 Section "Earthwork" for soil materials, excavating, backfilling, and site grading.

1.3 DEFINITIONS

- A. Topsoil: Natural or cultivated surface-soil layer containing organic matter and sand, silt, and clay particles; friable, pervious, and black or a darker shade of brown, gray, or red than underlying subsoil; reasonably free of subsoil, clay lumps, gravel, and other objects more than 2 inches (50 mm) in diameter; and free of weeds, roots, and other deleterious materials.

1.4 MATERIALS OWNERSHIP

- A. Except for materials indicated to be stockpiled or to remain Owner's property, cleared materials shall become Contractor's property and shall be removed from the site.

1.5 PROJECT CONDITIONS

- A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.
 - 1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.

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- B. Notify utility locator service for area where Project is located before site clearing.

PART 2 - PRODUCTS (Not Applicable)

2.1 SOIL MATERIALS

- A. Satisfactory Soil Materials: Requirements for satisfactory soil materials are specified in Division 2 Section "Earthwork."
 - 1. Obtain approved borrow soil materials off-site when satisfactory soil materials are not available on-site.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Protect and maintain benchmarks and survey control points from disturbance during construction.
- B. Provide erosion-control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.
- C. Protect existing site improvements to remain from damage during construction.
 - 1. Restore damaged improvements to their original condition, as acceptable to Owner.

3.2 UTILITIES

- A. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
 - 1. Notify Project Manager not less than two days in advance of proposed utility interruptions.
 - 2. Do not proceed with utility interruptions without Project Manager's written permission.

3.3 CLEARING AND GRUBBING

- A. Fill depressions caused by clearing and grubbing operations with satisfactory soil material, unless further excavation or earthwork is indicated.
 - 1. Place fill material in horizontal layers not exceeding **6-inch (200-mm)** loose depth, and compact each layer to a density equal to adjacent original ground.
- B. Stockpile topsoil materials away from edge of excavations without intermixing with subsoil. Grade and shape stockpiles to drain surface water. Cover to prevent windblown dust.

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1. Limit height of topsoil stockpiles to 72 inches (1800 mm).
2. Do not stockpile topsoil within drip line of remaining trees.
3. Dispose of excess topsoil as specified for waste material disposal.
4. Stockpile surplus topsoil and allow for resspreading deeper topsoil.

3.4 SITE IMPROVEMENTS

- A. Remove existing above- and below-grade improvements as indicated and as necessary to facilitate new construction.
- B. Remove paving as indicated.
 1. Unless existing full-depth joints coincide with line of demolition, neatly saw-cut length of existing asphalt pavement to remain before removing existing pavement. Saw-cut faces vertically.

3.5 DISPOSAL

- A. Disposal: Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials, including trash and debris, and legally dispose of them off Owner's property.

END OF SECTION 02230

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SECTION 02300 - EARTHWORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Preparing subgrades for slabs-on-grade.
 - 2. Drainage course for slabs-on-grade.
 - 3. Subsurface drainage backfill for walls and trenches.
 - 4. Excavating and backfilling trenches within building lines.
- B. Related Sections include the following:
 - 1. Division 2 Section "Site Clearing" for site stripping, grubbing, removing topsoil, and protecting trees to remain.
 - 2. Division 3 Section "Cast-in-Place Concrete"

1.3 DEFINITIONS

- A. Backfill: Soil materials used to fill an excavation.
- B. Base Course: Layer placed between the subbase course and asphalt paving.
- C. Borrow: Satisfactory soil imported from off-site for use as fill or backfill.
- D. Drainage Course: Layer supporting slab-on-grade used to minimize capillary flow of pore water.
- E. Excavation: Removal of material encountered above subgrade elevations.
 - 1. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated dimensions without direction by Architect. Unauthorized excavation, as well as remedial work directed by Architect, shall be without additional compensation.
- F. Fill: Soil materials used to raise existing grades
- G. Structures: Buildings, footings, foundations, slabs, or other man-made stationary features constructed above or below the ground surface.
- H. Subbase Course: Layer placed between the subgrade and base course for asphalt paving, or layer placed between the subgrade and a concrete pavement or walk.

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- I. Subgrade: Surface or elevation remaining after completing excavation, or top surface of a fill or backfill immediately below subbase, drainage fill, or topsoil materials.

1.4 PROJECT CONDITIONS

- A. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted in writing by Architect and then only after arranging to provide temporary utility services according to requirements indicated:
 1. Notify Architect not less than two days in advance of proposed utility interruptions.
 2. Do not proceed with utility interruptions without Architect's written permission.
 3. Contact utility-locator service for area where Project is located before excavating.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

- A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.
- B. Backfill and Fill: Satisfactory soil materials.

2.2 ACCESSORIES

- A. Warning Tape: Acid- and alkali-resistant polyethylene film warning tape manufactured for marking and identifying underground utilities, **6 inches (150 mm)** wide and **4 mils (0.1 mm)** thick, continuously inscribed with a description of the utility; colored as follows:
- B. Detectable Warning Tape: Acid- and alkali-resistant polyethylene film warning tape manufactured for marking and identifying underground utilities, minimum **6 inches (150 mm)** wide and **4 mils (0.1 mm)** thick, continuously inscribed with a description of utility, with metallic core encased in a protective jacket for corrosion protection, detectable by metal detector when tape is buried up to **30 inches (750 mm)** deep; colored as follows:
 1. Red: Electric.
 2. Yellow: Gas, oil, steam, and dangerous materials.
 3. Orange: Telephone and other communications.
 4. Blue: Water systems.
 5. Green: sewer systems.

2.3 PREPARATION

- A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.

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- B. Provide erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

2.4 DEWATERING

- A. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrades, and from flooding Project site and surrounding area.
- B. Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation.
 - 1. Reroute surface water runoff away from excavated areas. Do not allow water to accumulate in excavations. Do not use excavated trenches as temporary drainage ditches.
 - 2. Install a dewatering system to keep subgrades dry and convey ground water away from excavations. Maintain until dewatering is no longer required.

2.5 EXPLOSIVES

- A. Explosives: Do not use explosives.

2.6 EXCAVATION, GENERAL

- A. Unclassified Excavation: Excavation to subgrade elevations regardless of the character of surface and subsurface conditions encountered, including rock, soil materials, and obstructions.
 - 1. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.

2.7 EXCAVATION FOR STRUCTURES

- A. Excavate to indicated elevations and dimensions within a tolerance of plus or minus **1 inch (25 mm)**. Extend excavations a sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction, and for inspections.

2.8 EXCAVATION FOR WALKS AND PAVEMENTS

- A. Excavate surfaces under walks and pavements to indicated cross sections, elevations, and grades.

2.9 APPROVAL OF SUBGRADE

- A. If Project Manager determines that unsatisfactory soil is present, continue excavation and replace with compacted backfill or fill material as directed.
 - 1. Additional excavation and replacement material will be paid for according to Contract provisions for changes in the Work.

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- B. Proof roll subgrade with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding. Do not proof roll wet or saturated subgrades.
- C. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Project Manager.

2.10 STORAGE OF SOIL MATERIALS

- A. Stockpile borrow materials and satisfactory excavated soil materials. Stockpile soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
 - 1. Stockpile soil materials away from edge of excavations.

2.11 BACKFILL

- A. Place and compact backfill in excavations promptly, but not before completing the following:
 - 1. Surveying locations of underground utilities for record documents.
 - 2. Inspecting and testing underground utilities.
 - 3. Removing trash and debris.
 - 4. Removing temporary shoring and bracing, and sheeting.
 - 5. Installing permanent or temporary horizontal bracing on horizontally supported walls.
- B. Place and compact bedding course on trench bottoms and where indicated. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.

2.12 FILL

- A. Preparation: Remove vegetation, topsoil, debris, unsatisfactory soil materials, obstructions, and deleterious materials from ground surface before placing fills.
- B. Place and compact fill material in layers to required elevations as follows:
 - 1. Under slabs, use engineered fill.

2.13 MOISTURE CONTROL

- A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill layer before compaction to within 2 percent of optimum moisture content.
 - 1. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.

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2. Remove and replace, or scarify and air-dry, otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.

2.14 COMPACTION OF BACKFILLS AND FILLS

- A. Place backfill and fill materials in layers not more than 6 inches (200 mm) in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches (100 mm) in loose depth for material compacted by hand-operated tampers.
- B. Place backfill and fill materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.
- C. Compact soil to not less than the following percentages of maximum dry unit weight according to ASTM D 1557:
- D. Compact soil to not less than the following percentages of maximum dry unit weight according to ASTM D 698:
 1. Under structures, building slabs and pavements, scarify and recompact top 12 inches (300 mm) of existing subgrade and each layer of backfill or fill material at 95 percent.

2.15 GRADING

- A. General: Uniformly grade areas to a smooth surface, free from irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.
 1. Provide a smooth transition between adjacent existing grades and new grades.
 2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.
- B. Site Grading: Slope grades to direct water away from buildings and to prevent ponding.
- C. Grading inside Building Lines: Finish subgrade to a tolerance of 1/2 inch (13 mm) when tested with a 10-foot (3-m) straightedge

2.16 SUBBASE AND BASE COURSES

- A. Under pavements and walks, place subbase course on prepared subgrade and as follows:
 1. Place base course material over subbase.
 2. Compact subbase and base courses at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D 1557.
 3. Shape subbase and base to required crown elevations and cross-slope grades.
 4. When thickness of compacted subbase or base course is 6 inches (150 mm) or less, place materials in a single layer.

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5. When thickness of compacted subbase or base course exceeds 6 inches (150 mm), place materials in equal layers, with no layer more than 6 inches (150 mm) thick or less than 3 inches (75 mm) thick when compacted.

2.17 DRAINAGE COURSE

- A. Under slabs-on-grade, place drainage course on prepared subgrade and as follows:
 1. Compact drainage course to required cross sections and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D 698.
 2. When compacted thickness of drainage course is 6 inches (150 mm) or less, place materials in a single layer.
 3. When compacted thickness of drainage course exceeds 6 inches (150 mm), place materials in equal layers, with no layer more than 6 inches (150 mm) thick or less than 3 inches (75 mm) thick when compacted.

2.18 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified independent geotechnical engineering testing agency to perform field quality-control testing.
- B. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earthwork only after test results for previously completed work comply with requirements.
- C. Testing agency will test compaction of soils in place according to ASTM D 1556, ASTM D 2167, ASTM D 2922, and ASTM D 2937, as applicable. Tests will be performed at the following locations and frequencies:
 1. Paved and Building Slab Areas: At subgrade and at each compacted fill and backfill layer, at least one test for paved area or building slab.
 2. Foundation Wall Backfill: At each compacted backfill layer, at least one test.
- D. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil to depth required; recompact and retest until specified compaction is obtained.

2.19 PROTECTION

- A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.
- B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.
 1. Scarify or remove and replace soil material to depth as directed by Project Manager; reshape and recompact.

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- C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.
 - 1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to the greatest extent possible.

2.20 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A. Disposal: Remove surplus satisfactory soil and waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off Owner's property.
- B. Disposal: Transport surplus satisfactory soil to designated storage areas on Owner's property. Stockpile or spread soil as directed by Project Manager.
 - 1. Remove waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off Owner's property.

END OF SECTION 02300

SECTION 02511 - HOT-MIX ASPHALT PAVING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Hot-mix asphalt paving.
 - 2. Hot-mix asphalt patching.
- B. Related Sections include the following:
 - 1. Division 2 Section "Earthwork" for aggregate subbase and base courses and aggregate pavement shoulders.

1.3 SYSTEM DESCRIPTION

- A. Provide hot-mix asphalt pavement according to the materials, workmanship, and other applicable requirements of the standard specifications of the state or of authorities having jurisdiction.
 - 1. Standard Specification: As indicated.
 - 2. Measurement and payment provisions and safety program submittals included in standard specifications do not apply to this Section.

1.4 SUBMITTALS

- A. Product Data: For each product specified. Include technical data and tested physical and performance properties.
- B. Job-Mix Designs: Certification, by authorities having jurisdiction, of approval of each job mix proposed for the Work.
- C. Job-Mix Designs: For each job mix proposed for the Work.
- D. Qualification Data: For firms and persons specified in the "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

- E. Material Test Reports: Indicate and interpret test results for compliance of materials with requirements indicated.
- F. Material Certificates: Certificates signed by manufacturers certifying that each material complies with requirements.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: Engage an experienced installer who has completed hot-mix asphalt paving similar in material, design, and extent to that indicated for this Project and with a record of successful in-service performance.
- B. Manufacturer Qualifications: Engage a firm experienced in manufacturing hot-mix asphalt similar to that indicated for this Project and with a record of successful in-service performance.
 - 1. Firm shall be a registered and approved paving mix manufacturer with authorities having jurisdiction or with the DOT of the state in which Project is located.
- C. Testing Agency Qualifications: Demonstrate to Architect's satisfaction, based on Architect's evaluation of criteria conforming to ASTM D 3666, that the independent testing agency has the experience and capability to satisfactorily conduct the testing indicated without delaying the Work.
- D. Regulatory Requirements: Conform to applicable standards of authorities having jurisdiction for asphalt paving work on public property.
- E. Asphalt-Paving Publication: Comply with AI's "The Asphalt Handbook," except where more stringent requirements are indicated.
- F. Preinstallation Conference: Conduct conference at Project site to comply with requirements of Division 1 Section "Project Meetings" Review methods and procedures related to asphalt paving including, but not limited to, the following:
 - 1. Review proposed sources of paving materials, including capabilities and location of plant that will manufacture hot-mix asphalt.
 - 2. Review condition of substrate and preparatory work performed by other trades.
 - 3. Review requirements for protecting paving work, including restriction of traffic during installation period and for remainder of construction period.
 - 4. Review and finalize construction schedule for paving and related work. Verify availability of materials, paving Installer's personnel, and equipment required to execute the Work without delays.
 - 5. Review inspection and testing requirements, governing regulations, and proposed installation procedures.
 - 6. Review forecasted weather conditions and procedures for coping with unfavorable conditions.

1.6 PROJECT CONDITIONS

- A. Environmental Limitations: Do not apply asphalt materials if substrate is wet or excessively damp or if the following conditions are not met:
 - 1. Prime and Tack Coats: Minimum surface temperature of 60 deg F (15.5 deg C).
 - 2. Slurry Coat: Comply with weather limitations of ASTM D 3910.

3. Asphalt Base Course: Minimum surface temperature of 40 deg F (4 deg C) and rising at time of placement.
4. Asphalt Surface Course: Minimum surface temperature of 60 deg F (15.5 deg C) at time of placement.

PART 2 - PRODUCTS

PART 3 - AGGREGATES

- A. General: Use materials and gradations that have performed satisfactorily in previous installations.
- B. 1" Gradation Table

Ideal Gradation		Ideal Gradation
Sieve Size	Percent Passing	Tolerance (Percent)
1"	100	+/- 6
1/2"	85	+/- 6
No. 4	55	+/- 6
No. 16	31	+/- 4
No. 50	19	+/- 4
No. 200	9	+/-2

- C. Coarse Aggregate: Sound; angular crushed stone; crushed gravel; or properly cured, crushed blast-furnace slag; complying with ASTM D 692.
- D. Fine Aggregate: Sharp-edged natural sand or sand prepared from stone; gravel, properly cured blast-furnace slag, or combinations thereof; complying with ASTM D 1073.
 1. For hot-mix asphalt, limit natural sand to a maximum of 20 percent by weight of the total aggregate mass.
- E. Mineral Filler: Rock or slag dust, hydraulic cement, or other inert material complying with ASTM D 242.

3.2 ASPHALT MATERIALS

- A. Asphalt Cement: ASTM D 3381 for viscosity-graded material; ASTM D 946 for penetration-graded material.
- B. Asphalt Cement: ASTM D 3381 for viscosity-graded material.
- C. Undersealing Asphalt: ASTM D 3141, pumping consistency.
- D. Prime Coat: ASTM D 2027; medium-curing cutback asphalt; MC-30, MC-70, or MC-250.

- E. Prime Coat: Asphalt emulsion prime conforming to state DOT requirements.
- F. Prime Coat: ASTM D 977, emulsified asphalt or ASTM D 2397, cationic emulsified asphalt, slow setting, factory diluted in water, of suitable grade and consistency for application.
- G. Tack Coat: ASTM D 977, emulsified asphalt or ASTM D 2397, cationic emulsified asphalt, slow setting, factory diluted in water, of suitable grade and consistency for application.
- H. Fog Seal: ASTM D 977, emulsified asphalt or ASTM D 2397, cationic emulsified asphalt, slow setting, factory diluted in water, of suitable grade and consistency for application.
- I. Water: Potable.

3.3 AUXILIARY MATERIALS

- A. Herbicide: Commercial chemical for weed control, registered by Environmental Protection Agency (EPA). Provide granular, liquid, or wettable powder form.
- B. Sand: ASTM D 1073, Grade Nos. 2 or 3.
- C. Paving Geotextile: Nonwoven polypropylene, specifically designed for paving applications, resistant to chemical attack, rot, and mildew.
- D. Glass Beads: AASHTO M-247.

3.4 MIXES

- A. Hot-Mix Asphalt: Provide dense, hot-laid, hot-mix asphalt plant mixes approved by authorities having jurisdiction; designed according to procedures in AI's "Mix Design Methods for Asphalt Concrete and Other Hot-Mix Types"; and complying with the following requirements:
 - 1. Provide mixes with a history of satisfactory performance in geographical area where Project is located.
 - 2. Base Course: As indicated.
 - 3. Surface Course: As indicated.
- B. Hot-Mix Asphalt: Provide dense, hot-laid, hot-mix asphalt plant mixes approved by authorities having jurisdiction and designed according to procedures in AI's "Mix Design Methods for Asphalt Concrete and Other Hot-Mix Types."
 - 1. Provide mixes with a history of satisfactory performance in geographical area where Project is located.
 - 2. Provide mixes complying with the composition, grading, and tolerance requirements of ASTM D 3515 for the following nominal, maximum aggregate sizes:
 - a. Base Course: 1 inch (25 mm).
 - b. Surface Course: 1/2 inch (13 mm).

- C. Emulsified-Asphalt Slurry: ASTM D 3910, consisting of emulsified asphalt, fine aggregates, and mineral fillers and as follows:
 - 1. Composition: Type 1.
 - 2. Composition: Type 2.
 - 3. Composition: Type 3.

PART 4 - EXECUTION

4.1 EXAMINATION

- A. Verify that subgrade is dry and in suitable condition to support paving and imposed loads.
- B. Proof-roll subbase using heavy, pneumatic-tired rollers to locate areas that are unstable or that require further compaction.
- C. Notify Project Manager in writing of any unsatisfactory conditions. Do not begin paving installation until these conditions have been satisfactorily corrected.

4.2 PATCHING AND REPAIRS

- A. Patching: Saw cut perimeter of patch and excavate existing pavement section to sound base. Recompact new subgrade. Excavate rectangular or trapezoidal patches, extending **12 inches (300 mm)** into adjacent sound pavement, unless otherwise indicated. Cut excavation faces vertically.
 - 1. Tack coat faces of excavation and allow to cure before paving.
 - 2. Fill excavation with dense-graded, hot-mix asphalt base mix and, while still hot, compact flush with adjacent surface.
 - 3. Partially fill excavation with dense-graded, hot-mix asphalt base mix and compact while still hot. Cover asphalt base course with compacted, hot-mix surface layer finished flush with adjacent surfaces.
- B. Portland Cement Concrete Pavement: Break cracked slabs and roll as required to reseal concrete pieces firmly.
 - 1. Pump hot undersealing asphalt under rocking slabs until slab is stabilized or, if necessary, crack slab into pieces and roll to reseal pieces firmly.
 - 2. Remove disintegrated or badly broken pavement. Prepare and patch with hot-mix asphalt.
- C. Leveling Course: Install and compact leveling course consisting of dense-graded, hot-mix asphalt surface course to level sags and fill depressions deeper than **1 inch (25 mm)** in existing pavements.
 - 1. Install leveling wedges in compacted lifts not exceeding **3 inches (75 mm)** thick.
- D. Crack and Joint Filling: Remove existing filler material from cracks or joints to a depth of **1/4 inch (6 mm)**. Refill with asphalt joint-filling material to restore watertight condition. Remove excess filler that has accumulated near cracks or joints.

- E. Tack Coat: Apply uniformly to existing surfaces of previously constructed asphalt or portland cement concrete paving and to surfaces abutting or projecting into new, hot-mix asphalt pavement. Apply at a uniform rate of 0.05 to 0.15 gal./sq. yd. (0.2 to 0.7 L/sq. m) of surface.
 - 1. Allow tack coat to cure undisturbed before paving.
 - 2. Avoid smearing or staining adjoining surfaces, appurtenances, and surroundings. Remove spillages and clean affected surfaces.

4.3 SURFACE PREPARATION

- A. General: Immediately before placing asphalt materials, remove loose and deleterious material from substrate surfaces. Ensure that prepared subgrade is ready to receive paving.
 - 1. Sweep loose granular particles from surface of unbound-aggregate base course. Do not dislodge or disturb aggregate embedded in compacted surface of base course.
- B. Herbicide Treatment: Apply herbicide according to manufacturer's recommended rates and written application instructions. Apply to dry, prepared subgrade or surface of compacted-aggregate base before applying paving materials.
 - 1. Mix herbicide with prime coat when formulated by manufacturer for that purpose.
- C. Prime Coat: Apply uniformly over surface of compacted-aggregate base at a rate of 0.15 to 0.50 gal./sq. yd. (0.7 to 2.3 L/sq. m). Apply enough material to penetrate and seal, but not flood, surface. Allow prime coat to cure for 72 hours minimum.
 - 1. If prime coat is not entirely absorbed within 24 hours after application, spread sand over surface to blot excess asphalt. Use just enough sand to prevent pickup under traffic. Remove loose sand by sweeping before pavement is placed and after volatiles have evaporated.
 - 2. Protect primed substrate from damage until ready to receive paving.

4.4 HOT-MIX ASPHALT PLACING

- A. Machine place hot-mix asphalt mix on prepared surface, spread uniformly, and strike off. Place asphalt mix by hand to areas inaccessible to equipment in a manner that prevents segregation of mix. Place each course to required grade, cross section, and thickness, when compacted.
 - 1. Place hot-mix asphalt base course in number of lifts and thicknesses indicated.
 - 2. Place hot-mix asphalt surface course in single lift.
 - 3. Spread mix at minimum temperature of 250 deg F (121 deg C).
 - 4. Begin applying mix along centerline of crown for crowned sections and on high side of one-way slopes, unless otherwise indicated.
 - 5. Regulate paver machine speed to obtain smooth, continuous surface free of pulls and tears in asphalt-paving mat.
- B. Place paving in consecutive strips not less than 10 feet (3 m) wide, except where infill edge strips of a lesser width are required.
 - 1. After first strip has been placed and rolled, place succeeding strips and extend rolling to overlap previous strips. Complete asphalt base course for a section before placing asphalt surface course.

- C. Promptly correct surface irregularities in paving course behind paver. Use suitable hand tools to remove excess material forming high spots. Fill depressions with hot-mix asphalt to prevent segregation of mix; use suitable hand tools to smooth surface.

4.5 JOINTS

- A. Construct joints to ensure continuous bond between adjoining paving sections. Construct joints free of depressions with same texture and smoothness as other sections of hot-mix asphalt course.
 - 1. Clean contact surfaces and apply tack coat.
 - 2. Offset longitudinal joints in successive courses a minimum of 6 inches (150 mm).
 - 3. Offset transverse joints in successive courses a minimum of 24 inches (600 mm).
 - 4. Construct transverse joints by bulkhead method or sawed vertical face method as described in AI's "The Asphalt Handbook."
 - 5. Compact joints as soon as hot-mix asphalt will bear roller weight without excessive displacement.
 - 6. Compact asphalt at joints to a density within 2 percent of specified course density.

4.6 COMPACTION

- A. General: Begin compaction as soon as placed hot-mix paving will bear roller weight without excessive displacement. Compact hot-mix paving with hot, hand tampers or vibratory-plate compactors in areas inaccessible to rollers.
 - 1. Complete compaction before mix temperature cools to 185 deg F (85 deg C).
- B. Breakdown Rolling: Accomplish breakdown or initial rolling immediately after rolling joints and outside edge. Examine surface immediately after breakdown rolling for indicated crown, grade, and smoothness. Repair surfaces by loosening displaced material, filling with hot-mix asphalt, and rerolling to required elevations.
- C. Intermediate Rolling: Begin intermediate rolling immediately after breakdown rolling, while hot-mix asphalt is still hot enough to achieve specified density. Continue rolling until hot-mix asphalt course has been uniformly compacted to the following density:
 - 1. Average Density: 96 percent of reference laboratory density according to ASTM D 1559, but not less than 94 percent nor greater than 100 percent.
 - 2. Average Density: 92 percent of reference maximum theoretical density according to ASTM D 2041, but not less than 90 percent nor greater than 96 percent.
- D. Finish Rolling: Finish roll paved surfaces to remove roller marks while hot-mix asphalt is still warm.
- E. Edge Shaping: While surface is being compacted and finished, trim edges of pavement to proper alignment. Bevel edges while still hot, with back of rake or smooth iron. Compact thoroughly using tamper or other satisfactory method.
- F. Repairs: Remove paved areas that are defective or contaminated with foreign materials. Remove paving course over area affected and replace with fresh, hot-mix asphalt. Compact by rolling to specified density and surface smoothness.

- G. Protection: After final rolling, do not permit vehicular traffic on pavement until it has cooled and hardened.
- H. Erect barricades to protect paving from traffic until mixture has cooled enough not to become marked.

4.7 INSTALLATION TOLERANCES

- A. Thickness: Compact each course to produce the thickness indicated within the following tolerances:
 - 1. Base Course: Plus or minus 1/2 inch (13 mm).
 - 2. Surface Course: Plus 1/4 inch (6 mm), no minus.
- B. Surface Smoothness: Compact each course to produce a surface smoothness within the following tolerances as determined by using a 10-foot (3-m) straightedge applied transversely or longitudinally to paved areas:
 - 1. Base Course: 1/4 inch (6 mm).
 - 2. Surface Course: 1/8 inch (3 mm).
 - 3. Crowned Surfaces: Test with crowned template centered and at right angle to crown. Maximum allowable variance from template is 1/4 inch (6 mm).

4.8 SURFACE TREATMENTS

- A. Fog Seals: Apply fog seal at a rate of 0.10 to 0.15 gal./sq. yd. (0.45 to 0.70 L/sq. m) to existing asphalt pavement and allow to cure. Lightly dust areas receiving excess fog seal with a fine sand.
- B. Slurry Seals: Apply slurry coat in a uniform thickness according to ASTM D 3910 and allow to cure.
 - 1. Roll slurry seal to smooth ridges and provide a uniform, smooth surface.

4.9 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified independent testing agency to perform field inspections and tests and to prepare test reports.
 - 1. Testing agency will conduct and interpret tests and state in each report whether tested Work complies with or deviates from specified requirements.
- B. Additional testing, at Contractor's expense, will be performed to determine compliance of corrected Work with specified requirements.
- C. Thickness: In-place compacted thickness of hot-mix asphalt courses will be determined according to ASTM D 3549.
- D. Surface Smoothness: Finished surface of each hot-mix asphalt course will be tested for compliance with smoothness tolerances.

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- E. Remove and replace or install additional hot-mix asphalt where test results or measurements indicate that it does not comply with specified requirements.

END OF SECTION 02511

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SECTION 02630 - STORM DRAINAGE

1.1 GENERAL

- A. Submit Shop Drawings for precast concrete manholes, sumps and catch basins.

1.2 PRODUCTS

- A. Piping Materials: Refer to "Piping Applications" Paragraph for applications.
1. PVC Sewer Pipe and Fittings, **NPS 18 (DN450)** and Larger: ASTM F 679, T-1 wall thickness, bell and spigot for gasketed joints.
 - a. Gaskets: ASTM F 477, elastomeric seals.
 2. Sleeve-Type Pipe Couplings: ASTM C 1173, rubber or elastomeric sleeve and band assembly fabricated to mate with OD of pipes to be joined, for nonpressure joints.
- B. Normal-Traffic Precast Concrete Manholes: **ASTM C 478 (ASTM C 478M)**, precast, reinforced concrete, of depth indicated, with provision for rubber gasketed joints.
1. Diameter: **as shown on drawings.**
 2. Ballast: Increase thickness of precast concrete sections or add concrete to base section, as required to prevent flotation.
 3. Gaskets: **ASTM C 443 (ASTM C 443M)**, rubber.
 4. Grade Rings: Include two or three reinforced-concrete rings, of **6- to 9-inch (150- to 229-mm)** total thickness, that match **24-inch- (610-mm-)** diameter frame and cover.
 5. Steps: **ASTM C 478 (ASTM C 478M)**, individual steps or ladder. Omit steps for manholes less than **60 inches (1500 mm)** deep.
 6. Pipe Connectors: **ASTM C 923 (ASTM C 923M)**, resilient, of size required, for each pipe connecting to base section.
 7. Manhole Frames and Covers: ASTM A 536, Grade 60-40-18, ductile-iron castings designed for heavy-duty service. Include **24-inch (610-mm)** ID by **7- to 9-inch (178- to 229-mm)** riser with **4-inch (100-mm)** minimum width flange, and **26-inch- (660-mm-)** diameter cover. Include indented top design with lettering "STORM SEWER" cast into cover.
- C. Precast Concrete Catch Basins: ASTM C 913, precast, reinforced concrete; designed according to ASTM C 890 for A-16, heavy-traffic, structural loading; of depth, shape, and dimensions indicated, with provision for rubber gasketed joints.
1. Gaskets: Rubber.
 2. Pipe Connectors: **ASTM C 923 (ASTM C 923M)**, resilient, of size required, for each pipe connecting to base section.
 3. Frames and Grates: ASTM A 536, Grade 60-40-18, ductile iron designed for heavy-duty service. Include flat grate with small square or short-slotted drainage openings.
 - a. Size: **24 by 24 inches (610 by 610 mm)** minimum, unless otherwise indicated.
 - b. Grate Free Area: Approximately 50 percent, unless otherwise indicated.

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- D. Ballast: Portland cement design mix, 3000 psi (20.7 MPa) minimum, with 0.58 maximum water-cementitious materials ratio.
 - 1. Reinforcement Fabric: ASTM A 185, steel, welded wire fabric, plain.
 - 2. Reinforcement Bars: ASTM A 615/A 615M, Grade 60 (Grade 400), deformed steel.
- E. Protective Coatings: One- or two-coat, coal-tar epoxy; 15-mil (0.38-mm) minimum thickness, unless otherwise indicated; factory or field applied to the following surfaces:
 - 1. Concrete Manholes: On exterior and interior surfaces.
 - 2. Manhole Frames and Covers: On entire surfaces.
 - 3. Concrete Catch Basins: On exterior and interior surfaces.
 - 4. Catch Basin Frames and Grates: On entire surfaces.

1.3 EXECUTION

- A. Excavating, trenching, and backfilling are specified in Division 2 Section "Earthwork."
- B. Identification: Materials and their installation are specified in Division 2 Section "Earthwork." Arrange for installing green warning tapes directly over piping and at outside edges of underground structures.
- C. Piping Applications: Include watertight, silttight, or soiltight joints.
 - 1. NPS 8 to NPS 15 (DN200 to DN375): PVC sewer pipe and fittings, gaskets, and gasketed joints.
- D. Sleeve-Type Pipe Couplings: Use where required to join piping and no other appropriate method is specified. Do not use instead of specified joining methods.
- E. General Locations and Arrangements: Drawing plans and details indicate general location and arrangement of underground storm drainage piping. Location and arrangement of piping layout take design considerations into account. Install piping as indicated, to extent practical.
- F. Install piping beginning at low point, true to grades and alignment indicated with unbroken continuity of invert. Place bell ends of piping facing upstream. Install gaskets, seals, sleeves, and couplings according to manufacturer's written instructions for use of lubricants, cements, and other installation requirements. Maintain swab or drag in line, and pull past each joint as it is completed.
- G. Install gravity-flow piping of sizes and in locations indicated. Terminate piping as indicated.
 - 1. Install piping pitched down in direction of flow, at minimum slope of 1/2" per foot.
- H. Pipe Joint Construction and Installation: Join and install pipe and fittings according to installations indicated.
 - 1. PVC Sewer Pipe and Fittings: As follows:
 - a. Join pipe and gasketed fittings with gaskets according to ASTM D 2321.
 - b. Install according to ASTM D 2321.
 - 2. Join piping made of different materials or dimensions with couplings made for this application. Use couplings that are compatible with and that fit both systems' materials and dimensions.

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- I. Manhole Installation: Install complete with appurtenances and accessories indicated.
 - 1. Set tops of frames and covers flush with finished surface of manholes that occur in pavements.
 - 2. Install precast concrete manhole sections with gaskets according to ASTM C 891.
- J. Catch-Basin Installation: Set frames and grates to elevations indicated.
- K. Concrete Placement: Place cast-in-place concrete according to ACI 318 and ACI 350R.
- L. Make connections to existing piping and underground structures so finished Work complies as nearly as practical with requirements specified for new Work.
- M. Protect existing piping and structures to prevent concrete or debris from entering while making tap connections. Remove debris or other extraneous material that may accumulate.
- N. Clear interior of piping and structures of dirt and superfluous material as work progresses. Maintain swab or drag in piping, and pull past each joint as it is completed.
 - 1. Place plug in end of incomplete piping at end of day and when work stops.
 - 2. Flush piping between manholes and other structures to remove collected debris, if required by authorities having jurisdiction.
- O. Inspect interior of piping to determine whether line displacement or other damage has occurred. Inspect after approximately 24 inches (600 mm) of backfill is in place, and again at completion of Project.
 - 1. Defects requiring correction include the following:
 - a. Alignment: Less than full diameter of inside of pipe is visible between structures.
 - b. Deflection: Flexible piping with deflection that prevents passage of ball or cylinder of size not less than 92.5 percent of piping diameter.
 - c. Crushed, broken, cracked, or otherwise damaged piping.
 - d. Infiltration: Water leakage into piping.
 - e. Exfiltration: Water leakage from or around piping.
 - 2. Replace defective piping using new materials, and repeat inspections until defects are within allowances specified.
 - 3. Reinspect and repeat procedure until results are satisfactory.
- P. Test new piping systems according to authorities having jurisdiction.

END OF SECTION 02630

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SECTION 02764 - PAVEMENT JOINT SEALANTS

1.1 GENERAL

- A. Preconstruction Joint-Sealant-Substrate Tests: Submit substrate materials, representative of actual joint surfaces, to joint sealant manufacturer for laboratory testing of joint sealants for adhesion to primed and unprimed substrates and for compatibility with joint substrates and other joint-related materials.
- B. Submittals: In addition to Product Data, submit the following:
 - 1. Samples of each type and color of joint sealant required.
 - 2. Certified test reports for joint sealants evidencing compliance with requirements.

1.2 PRODUCTS

- A. Compatibility: Provide joint sealants, backing materials, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by testing and field experience.
- B. Colors: Provide color as selected by Architect from manufacturer's full range for this characteristic.
- C. Cold-Applied Joint Sealants: Provide manufacturer's standard products complying with the following requirements:
 - 1. Multicomponent Low-Modulus Sealant for Concrete and Asphalt: Proprietary formulation consisting of reactive petropolymer and activator components producing a pourable, self-leveling sealant.
- D. Joint-Sealant Backer Materials: Nonstaining; compatible with joint substrates, sealants, primers and other joint fillers; and approved for applications indicated by joint sealant manufacturer based on field experience and laboratory testing.
 - 1. Round Backer Rod for Cold- and Hot-Applied Sealants: ASTM D 5249, Type 1, of diameter and density required to control sealant depths and prevent bottom-side adhesion of sealant.
- E. Primers: As recommended by joint sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

1.3 EXECUTION

- A. General: Comply with joint sealant manufacturer's written instructions applicable to products and applications indicated.
- B. Elastomeric Sealant Installation Standard: Comply with ASTM C 1193.
- C. Provide recessed joint configuration for silicone sealants of recess depth and at locations indicated.

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END OF SECTION 02764

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SECTION 03300 - CAST-IN-PLACE CONCRETE

1.1 GENERAL

- A. Submittals: In addition to Product Data, submit design mixes and the following for each concrete mix:
 - 1. Shop Drawings detailing fabrication, bending, and placement.
 - 2. Material certificates signed by product manufacturers certifying that product complies with requirements.
- B. Quality Assurance: Comply with ACI 301, "Specification for Structural Concrete," and ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."
 - 1. Installer Qualifications: An experienced installer who has completed concrete Work similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.
 - 2. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products complying with ASTM C 94 requirements for production facilities and equipment.

1.2 PRODUCTS

- A. Steel Reinforcement: As follows:
 - 1. Reinforcing Bars: ASTM A 615/A 615M, Grade 60 (Grade 420), deformed.
 - 2. Deformed-Steel Wire: ASTM A 496.
- B. Concrete Materials: As follows:
 - 1. Portland Cement: ASTM C 150, Type I or II.
 - 2. Aggregate: ASTM C 33, uniformly graded, from a single source.
 - 3. Water: ASTM C 94.
 - 4. Air-Entraining Admixture: ASTM C 260.
 - 5. Water-Reducing Admixture: ASTM C 494, Type A.
 - 6. High-Range, Water-Reducing Admixture: ASTM C 494, Type F.
 - 7. Water-Reducing and Accelerating Admixture: ASTM C 494, Type E.
 - 8. Water-Reducing and Retarding Admixture: ASTM C 494, Type D.
 - 9. Synthetic Fiber: Fibrillated or monofilament polypropylene fibers engineered and designed for use in concrete, complying with ASTM C 1116, Type III, 1/2 to 1 inch (13 to 25 mm) long.
- C. Related Materials: As follows:
 - 1. Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber, or ASTM D 1752, cork or self-expanding cork.
 - 2. Bonding Agent: ASTM C 1059, Type II, non-redispersible, acrylic emulsion or styrene butadiene.
 - 3. Epoxy-Bonding Adhesive: ASTM C 881, two-component epoxy resin, of class and grade to suit requirements.

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D. Curing Materials: As follows:

1. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.
2. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. (305 g/sq. m) dry.
3. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.
4. Clear, Solvent-Borne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B.
5. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B.
6. Clear, Solvent-Borne, Membrane-Forming Curing and Sealing Compound: ASTM C 1315, Type 1, Class A.
7. Clear, Waterborne, Membrane-Forming Curing and Sealing Compound: ASTM C 1315, Type 1, Class A.

E. Concrete Mixes: Prepare design mixes, proportioned according to ACI 211.1 and ACI 301, with the following properties:

1. Compressive Strength (28 Days): 3500 psi (24.1 MPa).
2. Slump: 4 inches (100 mm).
3. Air Content: 4.5 to 7.0 percent.

1.3 EXECUTION

- A. Design, construct, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until concrete structure can support such loads.
- B. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use Setting Drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
- C. Comply with ACI 318 (ACI 318M), ACI 301, and recommendations in ACI 347R for design, installation, and removal of shoring and reshoring.
- D. Steel Reinforcement: Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.
- E. Joints: Locate and install construction, isolation, and contraction joints.
- F. Concrete Placement: Deposit concrete continuously and avoid segregation. Deposit concrete in forms in horizontal layers no deeper than 24 inches (600 mm), avoiding cold joints.
 1. Consolidate concrete with mechanical vibrating equipment.
 2. Screed and initial-float concrete floors and slabs using bull floats or darbies to form a uniform and open-textured surface plane, free of humps or hollows, before excess moisture or bleedwater appears on the surface. Do not further disturb slab surfaces before starting finishing operations.

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3. Comply with ACI 306.1 for cold-weather concrete placement.
 4. Place concrete according to recommendations in ACI 305R when hot-weather conditions exist.
- G. Finish formed surfaces as follows:
1. Apply rough-formed finish, defined in ACI 301, to concrete surfaces indicated or not exposed to public view.
- H. Finishing Floors and Slabs: Comply with recommendations in ACI 302.1R for screeding, restraighening, and finishing operations for concrete surfaces.
- I.
1. Trowel Finish: Apply a trowel finish to surfaces indicated and to surfaces exposed to view.
 - a. After applying float finish, apply first trowel finish and consolidate concrete by hand or power-driven trowel. Continue troweling passes and restraighen until surface is free of trowel marks and uniform in texture and appearance. Replace surface tolerances below with values from the F-number system if required. See Basic Section for more values if required.
 - b. Finish and measure surface so gap at any point between concrete surface and an unveled freestanding ~~10-foot-~~ (3.05-m-) long straightedge, resting on two high spots and placed anywhere on the surface, does not exceed the following:
 - 1) ~~1/8 inch~~ (3.2 mm).
 2. Broom Finish: Apply a broom finish to exterior concrete, brooming with fiber-bristle broom perpendicular to main traffic route, to platforms, steps, and ramps, and elsewhere as indicated.
- J. Concrete Protection and Curing: Protect concrete from excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and with recommendations in ACI 305R for hot-weather protection during curing.
1. Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause excessive moisture loss.
 2. Begin curing after finishing concrete but not before free water has disappeared from concrete surface.
 3. Cure formed and unformed concrete for at least seven days by moisture curing, moisture-retaining-cover curing, or curing compound.
 4. Cure and seal floors and slabs with a curing and sealing compound according to manufacturer's written instructions.
- K. Testing Agency: Owner will engage a qualified independent testing and inspecting agency to sample materials, perform tests, and submit test reports during concrete placement. Tests shall be performed according to ACI 301.
- L. Defective Concrete: Repair and patch defective areas when approved by Project Manager. Remove and replace concrete that cannot be repaired and patched to Project Manager approval.

END OF SECTION 03300

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SECTION 05500 - METAL FABRICATIONS

1.1 GENERAL

A. Submittals: In addition to Product Data, submit the following:

1. Shop Drawings detailing fabrication and erection.
2. Templates for anchor bolts.

1.2 PRODUCTS

A. General: Provide materials with smooth, flat surfaces without blemishes.

B. Ferrous Metals: As follows:

1. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.
2. Steel Pipe: ASTM A 53, standard weight (Schedule 40), unless otherwise indicated.
3. Concrete Inserts: Threaded or wedge type; galvanized ferrous castings, either **ASTM A 47** (**ASTM A 47M**) malleable iron or ASTM A 27/A 27M cast steel. Provide bolts, washers, and shims as needed, hot-dip galvanized per ASTM A 153/A 153M.

C. Shop Primer for Ferrous Metal: Fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with performance requirements in FS TT-P-664 and compatible with finish paint systems indicated.

D. Shop Primer for Ferrous Metal: Organic zinc-rich primer, complying with SSPC-Paint 20 and compatible with topcoat.

E. Galvanizing Repair Paint: High-zinc-dust-content paint for regalvanizing welds in steel, complying with SSPC-Paint 20.

F. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107.

G. Concrete Fill: Comply with requirements in Division 3 Section "Cast-in-Place Concrete" for normal-weight, air-entrained, ready-mix concrete with a minimum 28-day compressive strength of **3000 psi** (**20 MPa**), unless otherwise indicated.

H. Fabrication, General: Use connections that maintain structural value of joined pieces. Shear and punch metals cleanly and accurately. Remove burrs.

1. Weld corners and seams continuously. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals. Obtain fusion without undercut or overlap. Remove welding flux immediately. Finish exposed welds smooth and blended.
2. Fabricate joints that will be exposed to weather in a manner to exclude water, or provide weep holes.
3. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners where possible. Locate joints where least conspicuous.

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- I. Shelf Angles: Fabricate to sizes indicated and for attachment to framing. Provide horizontally slotted holes to receive **3/4-inch (19-mm)** bolts, spaced not more than **6 inches (150 mm)** from ends and **16 inches (600 mm)** o.c.
 - 1. Galvanize shelf angles to be installed in interior walls.
 - 2. Furnish wedge-type concrete inserts, complete with fasteners, to attach shelf angles to cast-in-place concrete.
- J. Miscellaneous Framing and Supports: Provide steel framing and supports that are not a part of structural-steel framework as necessary to complete the Work. Fabricate from structural steel of welded construction. Cut, drill, and tap units to receive hardware, hangers, and similar items.
 - 1. Where indicated to be cast into concrete or built into masonry, equip with integrally welded anchors at **16 inches (600 mm)** o.c.
- K. Miscellaneous Steel Trim: Fabricate units with continuously welded joints and smooth exposed edges. Miter corners and use concealed splices where possible. Provide cutouts, fittings, and anchorages; coordinate assembly and installation with other work.
- L. Pipe Bollards: Fabricate from Schedule 40 steel pipe.
 - 1. Cap bollards with **1/4-inch- (6-mm-)** minimum steel plate.
 - 2. Fabricate bollards with **3/8-inch- (10-mm-)** thick steel baseplates drilled at all four corners for **3/4-inch (19-mm)** anchor bolts.
 - 3. Fabricate sleeves for bollard anchorage from steel pipe with **1/4-inch (6-mm)** thick steel plate welded to bottom of sleeve.
- M. Finish metal fabrications after assembly. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes. Shop prime ferrous-metal items not indicated to be galvanized.
 - 1. Hot-dip galvanize items indicated to be galvanized to comply with ASTM A 123 or ASTM A 153/A 153M as applicable.
 - 2. Preparation for Shop Priming: Prepare uncoated ferrous-metal surfaces to comply with SSPC-SP 3, "Power Tool Cleaning."
 - 3. Apply shop primer to comply with SSPC-PA 1, "Paint Application Specification No. 1," for shop painting.

1.3 EXECUTION

- A. Installation, General: Provide anchorage devices and fasteners for securing metal fabrications to in-place construction. Perform cutting, drilling, and fitting required for installing metal fabrications. Set metal fabrications accurately in location, with edges and surfaces level, plumb, and true.
 - 1. Provide temporary bracing or anchors in formwork for items that are to be built into concrete, masonry, or similar construction.
 - 2. Fit exposed connections accurately together. Weld connections, unless otherwise indicated. Do not weld, cut, or abrade galvanized surfaces.
- B. Anchor bollards in place with concrete footings. Support and brace bollards in position in footing excavations until concrete has been placed and cured.

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- C. Fill bollards solidly with concrete, mounding top surface.
- D. Touch up shop paint after erection. Clean field welds, bolted connections, and abraded areas and paint with the same material as used for shop painting.
- E. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780.

END OF SECTION 05500

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SECTION 07920 - JOINT SEALANTS

1.1 GENERAL

- A. Preconstruction Joint-Sealant-Substrate Tests: Submit substrate materials, representative of actual joint surfaces, to joint sealant manufacturer for laboratory testing of joint sealants for adhesion to primed and unprimed substrates and for compatibility with joint substrates and other joint-related materials.
- B. Submittals: In addition to Product Data, submit the following:
 - 1. Samples of each type and color of joint sealant required.
 - 2. Test reports for joint sealants evidencing compliance with requirements.

1.2 PRODUCTS

- A. Elastomeric Sealant Manufacturers: Subject to compliance with requirements, provide sealants by one of the following:
 - 1. Silicone Sealants:
 - a. Bostik Inc.
 - b. Dow Corning.
 - c. NUCO Industries, Inc.
 - d. Polymeric Systems, Inc.
 - e. Sonneborn Building Products Div., ChemRex Inc.
 - f. Tremco.
 - 2. Urethane Sealants:
 - a. W.R. Meadows, Inc.
 - b. Pacific Polymers, Inc.
 - c. Polymeric Systems, Inc.
 - d. Sika Corporation.
 - e. Sonneborn Building Products Div., ChemRex Inc.
 - f. Tremco.
- B. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by testing and field experience.
- C. Colors: Provide colors indicated for exposed joint sealants or, if not indicated, as selected by Architect from manufacturer's full range for this characteristic.
- D. Elastomeric Sealant Standard: Comply with ASTM C 920 and other requirements indicated for each liquid-applied chemically curing sealant of base polymer specified below:

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1. Single-Component Nonsag Polysulfide Sealant: Type S; Grade NS; Class 25; Uses NT, M, G, A, and O.
 2. Medium-Modulus Neutral-Curing Silicone Sealant: Type S; Grade NS; Class 25; with the additional capability, when tested per ASTM C 719, to withstand 50 percent movement in both extension and compression for a total of 100 percent movement and still comply with other requirements of ASTM C 920; and as follows:
 - a. Uses NT, M, G, A, and O.
 3. Mildew-Resistant Silicone Sealant: Type S; Grade NS; Class 25; Uses NT, G, A, and O; formulated with fungicide; intended for sealing interior joints with nonporous substrates exposed to high humidity and temperature extremes.
 4. Single-Component Nonsag Urethane Sealant: Type S; Grade NS; and as follows:
 - a. Class 12-1/2.
 - b. Class 25.
 - c. Uses NT, M, G, A, and O.
 - d. Uses NT, M, A, and O.
 - E. Acrylic-Based Solvent-Release Sealant: ASTM C 1311.
 - F. Butyl-Rubber-Based Solvent-Release Joint Sealant: ASTM C 1085.
 - G. Latex Sealant: ASTM C 834.
 - H. Sealant Backings, General: Nonstaining; compatible with joint substrates, sealants, primers, and other joint fillers; approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
 - I. Cylindrical Sealant Backings: ASTM C 1330, of type indicated below and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance:
 1. Type C: Closed-cell material with a surface skin.
 - J. Elastomeric Tubing Sealant Backings: Neoprene, butyl, EPDM, or silicone tubing complying with ASTM D 1056, nonabsorbent to water and gas, and capable of remaining resilient at temperatures down to **minus 26 deg F (minus 32 deg C)**.
 - K. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint.
 - L. Primer: As recommended by joint sealant manufacturer where required for adhesion of sealant to joint substrates indicated.
- 1.3 EXECUTION
- A. General: Comply with joint sealant manufacturer's instructions for products and applications indicated.

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- B. Sealant Installation Standard: Comply with ASTM C 1193.

END OF SECTION 07920

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SECTION 08110 - STEEL DOORS AND FRAMES

1.1 GENERAL

- A. Submit Product Data for each type of door and frame specified.
- B. Quality Assurance: Comply with ANSI/SDI 100.

1.2 PRODUCTS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Amweld Building Products, Inc.
 - 2. Benchmark Commercial Doors.
 - 3. Ceco Door Products.
 - 4. Curries Co.
 - 5. Deansteel Manufacturing Co.
 - 6. Mesker Door, Inc.
 - 7. Pioneer Industries.
 - 8. Steelcraft.
- B. Hot-Rolled Steel Sheets: **ASTM A 569** (**ASTM A 569M**).
- C. Cold-Rolled Steel Sheets: **ASTM A 366** (**ASTM A 366M**), commercial quality, or **ASTM A 620** (**ASTM A 620M**), drawing quality.
- D. Galvanized Steel Sheets: **ASTM A 526** (**ASTM A 526M**), commercial quality, or **ASTM A 642** (**ASTM A 642M**), drawing quality, with **A 60** or **G 60** (**Z 180** or **ZF 180**) coating designation, mill phosphatized.
- E. Steel Doors: Provide **1-3/4-inch-** (**44-mm-**) thick doors of materials and ANSI/SDI 100 grades and models specified below, or as indicated on Drawings or schedules:
 - 1. Exterior Doors: Grade III, extra heavy-duty, Model 2, seamless design, minimum **0.0635-inch-** (**1.6-mm-**) thick galvanized steel sheet faces.
- F. Frames: Provide frames for doors, sidelights, borrowed lights, and other openings that comply with ANSI/SDI 100; fabricate to be rigid, neat in appearance, and free from defects, warp, or buckle.
 - 1. For exterior frames provide units with mitered or coped and continuously welded corners, formed from **0.0635-inch-** (**1.6-mm-**) thick galvanized steel sheet.
- G. Tolerances: Comply with SDI 117.
- H. Fabricate concealed stiffeners, reinforcement, edge channels, louvers, and moldings from either cold- or hot-rolled steel sheet.

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- I. Hardware Preparation: Prepare doors and frames to receive mortised and concealed hardware according to SDI 107.
- J. Finishes, General: Comply with NAAMM's "Metal Finishes Manual" for recommendations relative to applying and designating finishes.
 - 1. Apply primers and organic finishes to doors and frames after fabrication.
- K. Galvanized Steel Sheet Finishes: Comply with SDI 112 and the following:
 - 1. Surface Preparation: Clean surfaces with nonpetroleum solvent so that surfaces are free of oil or other contaminants. After cleaning, apply a conversion coating of the type suited to the organic coating applied over it. Clean welds, mechanical connections, and abraded areas, and apply galvanizing repair paint specified to comply with ASTM A 780.
 - 2. Galvanizing Repair Paint: SSPC-Paint 20, high-zinc-dust-content paint with dry film containing not less than 94 percent zinc dust by weight.
 - 3. Factory Priming for Field-Painted Finish: Apply air-dried primer specified below immediately after cleaning and pretreatment.
 - a. Shop Primer: Zinc-dust, zinc-oxide primer paint complying with performance requirements of FS TT-P-641, Type II.
 - 4. Baked-Enamel Finish: Immediately after cleaning and pretreating, apply manufacturer's standard 2-coat, baked-enamel finish consisting of prime coat and thermosetting topcoat, with a minimum dry film thickness of 1 mil (0.0254 mm) for topcoat. Comply with paint manufacturer's instructions for applying and baking to achieve a minimum dry film thickness of 2 mils (0.0508 mm).
 - a. Color and Gloss: As selected by Project Manager's from manufacturer's full range of choices for color and gloss.

1.3 EXECUTION

- A. General: Install steel doors, frames, and accessories according to Shop Drawings, manufacturer's data, and as specified.
- B. Placing Frames: Comply with provisions of SDI 105, unless otherwise indicated. Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set.
 - 1. Except for frames located in existing concrete, masonry, or gypsum board assembly construction, place frames before constructing enclosing walls and ceilings.
 - 2. Install at least 3 anchors per jamb adjacent to hinge location on hinge jamb and at corresponding heights on strike jamb.
- C. Door Installation: Fit hollow-metal doors accurately in frames, within clearances specified in ANSI/SDI 100.
- D. Protection Removal: Immediately before final inspection, remove protective wrappings from doors and frames.

END OF SECTION 08110

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SECTION 08710--FINISH HARDWARE

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.

1.2 DESCRIPTION OF WORK

- A. Definition: "Finish Hardware" includes items known commercially as finish hardware which are required for swing, sliding and folding doors, except special types of unique and non-matching hardware specified in the same section as the door and door frame.
- B. Extent of finish hardware required is indicated on drawings and in schedules.
- C. Types of finish hardware required include the following:
 - Lock cylinders and keys
 - Lock and latch sets
 - Exit devices
 - Closers
 - Electronic door control devices
 - Overhead Holders
 - Door trim units

1.3 RELATED SECTIONS

- A. Division 8 - Steel Doors and Frames.

1.4 QUALITY ASSURANCE

- A. Manufacturer: Obtain each type of hardware (latch and locksets, etc.) from a single manufacturer
- B. Supplier: A recognized architectural finish hardware supplier, with warehousing facilities, who has been furnishing hardware in the project's vicinity for a period of not less than 2 years, and who is, or who employs an experienced architectural hardware consultant who is available, at reasonable times during the course of the work, for consultation about project's hardware requirements, to Owner, Architect and Contractor.
- C. Fire-Rated Openings: Provide hardware for fire-rated openings in compliance with NFPA Standard No. 80 and local building code requirements. Provide only hardware which has been tested and listed by UL or an approved testing agency for types and sizes of doors required and complies with requirements of door and door frame labels.
- D. Where emergency exit devices are required on fire-rated doors (with supplementary marking on doors with labels indicating "Fire Door to be Equipped with Fire Exit Hardware") provide labels on exit devices indicating "Fire Exit Hardware"

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- E. This supplier shall be responsible to field check existing openings for proper application of sizes and strikes for all openings.

1.5 REGULATORY REQUIREMENTS

- A. Where indicated to comply with accessibility requirements, comply with Americans with Disabilities Act (ADA), "Accessibilities Guidelines for Buildings and Facilities (ADAAG)," ANSI A117.1, FED-STD-795, "Uniform Federal Accessibility Standards."

1.6 SUBMITTALS

- A. Product Data: Submit manufacturers technical product data for each item of hardware in accordance with Division-1 section "Submittals". Include whatever information may be necessary to show compliance with requirements, and include instructions for installation and for maintenance of operating parts and finish.
- B. Hardware Schedule: Submit final hardware schedule in a vertical format as recognized by the Door and Hardware Institute (DHI). Horizontal schedule format will not be accepted. Coordinate hardware with doors, frames and related work to ensure proper size, thickness, hand, function and finish of hardware.
 - 1. Final Hardware Schedule Content: Based on finish hardware indicated, organize hardware schedule into "hardware sets" indicating complete designations of every item required for each door or opening. Include the following information:
 - a. Type, style, function, size and finish of each hardware item.
 - b. Name and manufacturer of each item.
 - c. Fastenings and other pertinent information.
 - d. Index to include location of hardware set cross-referenced to indications on drawings both on floor plans and in door and frame schedule.
 - e. Explanation of all abbreviations, symbols, codes, etc., contained in schedule.
 - f. Mounting locations for hardware.
 - g. Door and frame sizes and materials.
 - h. Keying information.
 - i. Wiring diagrams with theory of operation.
- C. Submittal Sequence: Submit schedule in accordance to Division 1, particularly where acceptance of hardware schedule must precede fabrication of other work (e.g., hollow metal frames) which is critical in the project construction schedule. Include with schedule the product data, samples, shop drawings of other work affected by finish hardware, and other information essential to the coordinated review of hardware schedule.
- D. Keying Schedule: Submit separate detailed schedule indicating clearly how the Owner's final instructions on keying of locks has been fulfilled.
- E. Samples if Requested: Prior to submittal of the final hardware schedule and prior to final ordering of finish hardware, submit one sample of each type of exposed hardware unit, finish as required,

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and tagged with full description for coordination with schedule. Return to project in time for installation.

- F. Templates: Furnish hardware templates to each fabricator of doors, frames and other work to be factory-prepared for the installation of hardware. Upon request, check shop drawings of such other work, to confirm that adequate provisions are made for proper location and installation of hardware.

1.7 PRODUCT HANDLING

- A. Tag each item or package separately, with identification related to final hardware schedule, and include basic installation instructions with each item or package.
- B. Inventory hardware jointly with representatives of hardware supplier and hardware installer until each is satisfied that count is correct.
- C. Deliver individually packaged hardware items at the proper times to the proper locations (shop or project site) for installation.
- D. Provide secure lock-up for hardware delivered to the project, but not yet installed. Control handling and installation of hardware items which are not immediately replaceable, so that completion of the work will not be delayed by hardware losses, both before and after installation.

1.8 "OR EQUAL" PROVISIONS

- A. The Contractor shall be responsible for supplying the primary product listed as the quality standard or a model, which is equal to the primary specified model in regards to specified function, quality, finish, sizes, accessories, options, durability, warranty, parts availability and listing approvals. If it is determined by the Owner or its appointed representative at any time during the bidding review, construction or installation, and prior to the final acceptance of the Project, that the "or equal" model submitted by the Contractor is not equal to the primary specified model, the Contractor shall assume all costs to replace the model submitted, with an approved equal model.
- B. The bidders shall submit a list in their bids providing manufacturer and model for all equipment in this section, which they propose to provide. The Owner will determine if the items so proposed meet the quality standards set by the specification.

2.1 SCHEDULED HARDWARE

- A. Requirements for design, grade, function, finish, size and other distinctive qualities of each type of finish hardware is indicated in the Finish Hardware Data Sheet and Hardware Schedule at the end of this section. Products are identified by using hardware designation numbers of the following.
- B. Manufacturer's Product Designations:
 - Exit Devices: Von Duprin--(Owner's Preference)
 - Closers: LCN--(Owner's Preference)
 - Kickplates: Ives

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Floor/Wall Stops:
Threshold & Weatherstrip

Ives
National Guard Products

2.2 MATERIALS AND FABRICATION

A. General:

1. Hand of door: Drawings show direction of slide, swing or hand of each door leaf. Furnish each item of hardware for proper installation and operation of door movement as shown.
2. Manufacturer's Name Plate: Do not use manufacturer's products which have manufacturer's name or trade name displayed in a visible location (omit removable nameplates), except in conjunction with required UL labels and as otherwise acceptable to Architect.
3. Manufacturer's identification will be permitted on rim of lock cylinders only.
4. Finish: All hardware finish shall match US26D unless otherwise indicated. Closer bodies, covers and arms shall be powder-coated finishes.
5. Fasteners: Provide hardware manufactured to conform to published templates, generally prepared for machine screw installation. Do not provide hardware which has been prepared for self-tapping sheet metal screws, except as specifically indicated.
6. Furnish screws for installation, with each hardware item. Provide Phillips flat-head screws except as otherwise indicated. Finish exposed (exposed under any condition) screws to match hardware finish or, if exposed in surfaces of other work, to match finish of such other work as closely as possible, including "prepared for paint" in surfaces to receive painted finish.
7. Provide concealed fasteners for hardware units which are exposed when door is closed, except to extent no standard units of type specified are available with concealed fasteners. Do not use thru-bolts for installation where bolt head or nut on opposite face is exposed in other work, except where it is not feasible to adequately reinforce the work. In such cases, provide sleeves for each thru-bolt or use sex screw fasteners.
8. Tools and Maintenance Instructions for Maintenance: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of finish hardware.

2.4 LOCK CYLINDERS AND KEYING

- A. General: Supplier will meet with Owner to finalize keying requirements and obtain final instructions in writing.
- B. Review the keying system with the Owner and provide the type required (master, grandmaster or great-grandmaster), either new or integrated with Owner's existing system. If key pinning charts are required, owner to furnish charts to hardware supplier.

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- C. Furnish temporary keyed cores for the construction period, and remove these when directed. The construction cores remain property of the supplier and shall be returned to the supplier when they are removed. Contractor shall install the permanent cores in the presence of the owner's representative.
- D. Metals: Construct lock cylinder parts from brass/bronze, stainless steel or nickel silver.
- E. Comply with Owner's instructions for masterkeying and, except as otherwise indicated, provide individual change key for each lock which is not designated to be keyed alike with a group of related locks.
- F. Permanently inscribe each key and cylinder with Visual Key Control that identifies cylinder manufacturer key symbol, and inscribe key with the notation "DO NOT DUPLICATE".
- G. Key Material: Provide keys of nickel silver only.
- H. Key Quantity:
 - 1. Furnish 3 change keys for each lock.
- I. Deliver keys to Owner's representative.

2.5 CLOSERS AND DOOR CONTROL DEVICES

- A. Size of Units: Except as otherwise specifically indicated, comply with the manufacturer's recommendations for size of door control unit, depending upon size of door, exposure to weather and anticipated frequency of use.
- B. Closers: All door closers shall be of one manufacturer to provide for proper installation and servicing after installation. All closers shall be inspected after installation by a factory representative to ensure proper adjustment and operation. Closer shall carry a manufacturer's 10 year warranty for hydraulic units and 2 year warranty for electrical and/or handicap power assist door closers against manufacturing defects and workmanship.
- J. Cylinder: Shall be of high strength cast iron construction. All door exterior closers shall be tested to ANSI/BHMA A156.4 test requirements by a BHMA certified independent testing laboratory. A written certification showing successful completion of a minimum of 10,000,000 cycles for all exterior door closers must be provided. Cylinder shall have been manufactured and in the marketplace for a minimum of 10 years.
- D. All door closers shall be fully hydraulic and have full rack and pinion action with a shaft diameter of a minimum of 1 1/16" and piston diameter of 1-1/2". Closer shall utilize full complement bearings at shaft. Pinion and pistons shall be hardened regardless of closer size. The closer shall incorporate tamper resistant non-critical screw valves of V-slot design to reduce possible clogging. Closer shall have separate and independent screw valve adjustments for latch speed, general speed and hydraulic backcheck. Backcheck shall be properly located so as to effectively slow the swing of the door at a minimum of 10 degrees in advance of the dead stop location. Pressure relief valves are not acceptable.

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- E. All door closers shall pass UL10C positive pressure fire test.
- F. Parallel Arm Closers: Shall incorporate one piece solid forged steel arms with bronze bushings. 1-9/16" x 1/2" steel stud shoulder bolts, shall be incorporated in regular arms, hold open arms, arms with stop built in, arms with hold open and stop built in. All other closers to have forged steel main arms for strength, and durability.
- G. Built-In Stops: Where closers with built-in positive stops are used, the stops shall be of one piece cast malleable iron material. Screw on stops of any kind are not acceptable. Where required, the hold-open assembly handle for these stops shall rotate on ball bearings.
- H. All closers to have a powder coat finish on closer body, arm, metal cover and adapter plate. Powder coat finish shall exceed a minimum 100 hour salt spray test, as described in ANSI Standard A156.4 and ASTM B117.
- I. Hydraulic Fluid: All closers, with the exception of interior and interior electronic closers, shall utilize temperature stable fluid capable of withstanding temperature ranges of 120 degrees F. to -30F. without requiring seasonal adjustment of closer speed to properly close the door.
- J. Supply all drop plates, shoe supports, templates, etc. to properly install closers according to manufacturer's recommendations.
- K. Provide grey resilient parts for exposed bumpers.
- L. Closer being submitted for approval shall have been manufactured for at least 10 years. A list of (10) year old projects using submitted closer shall be available upon request.
- M. All door closers shall be furnished with metal covers.
- N. Closer Manufacturers: Subject to compliance with requirements, provide closer products of the following approved manufacturers:
 - 1. LCN Closers - 4040 Series

2.8 EXIT DEVICES

General: All devices and mullions shall be of one manufacturer to provide for proper installation and servicing. Devices shall be furnished non-handed and capable of direct field conversion for all available trim functions. All devices shall carry a three year warranty against manufacturing defects and workmanship. Exit device(s) being submitted for approval shall have been manufactured for at least 10 years. A list of (10) years old projects using submitted exit device shall be available upon request.

A. Surface Mounted / Concealed Vertical Rod / Rim Exit Devices:

- 1. Devices shall be push through type touch pad design with a straight or horizontal motion to eliminate pinch points. The angular motion type pad with end cavity exposed when depressed is unacceptable. Latch bolt shall have a self-lubricating coating which reduces

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- friction and wear. Plated latch bolts are unacceptable. Device housing shall be heavy duty extruded aluminum.
2. Mechanism Case or Housing: Shall have an average minimum thickness of (.140") EXTRUDED aluminum, and shall have the adaptability to convert from standard hex key dogging to a high security cylinder dog operation in the field.
 - a. No exposed screws shall be seen from the back side (pull side) of the device through a glass lite.
 - b. The use of plastic parts to retract the latchbolt is unacceptable.
 3. Springs: Only minimum (1/16") diameter compression springs are acceptable. All internal parts shall be zinc dichromate coated to prevent rusting.
 4. Quiet Feature: All devices shall incorporate a hydraulic sound damper to which decelerates the touchpad on its return stroke and eliminates noise associated with exit device operation.
 5. Touch Pad: Shall be architectural metal with a minimum height of 2-3/16". Plastic is not acceptable.
 6. Outside Trim: Shall be heavy duty type and fastened by means of concealed welded lugs and thru-bolts from the inside. Lever trim shall be forged brass with a minimum average thickness on the escutcheon of (.130"). Plate with pull shall be minimum average thickness of (.090") and have forged pulls. Lever trim shall be furnished with "Break-Away Levers" (996L Trim).
 7. End caps shall be sloped and of heavy-duty metal alloy construction and provide horizontal adjustment to provide flush alignment with device cover plate. When device end cap is installed, no raised edges will protrude. End cap shall be cast metal or forged aluminum and have a minimum thickness of (.250"). Plastic or metal stamping will not be acceptable.
 8. All devices with US28 finish to have stainless steel touch bars with US26D trim.
 9. All floor strikes on interior vertical rod panic devices to be similar to Von Duprin 385A.
 10. Provide all shim kits and filler plates to allow flush mounting of exit devices on all types of doors used in this project.
 11. Furnish all exit devices with deadlocking latchbolts.
 12. Surface Vertical Rod Series Exit Device shall be tested to ANSI/BHMA A156.3 test requirements by a BHMA certified independent testing laboratory; a written certification showing successful completion of a minimum of 5,000,000 cycles must be provided by the independent laboratory. Rim Series Exit Device shall be tested to ANSI/BHMA A156.3 test requirements by a BHMA certified independent testing laboratory; a written certification showing successful completion of a minimum of 5,000,000 cycles must be provided by the independent laboratory. Mortise Series Exit Device shall be tested to

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ANSI/BHMA A156.3 test requirements by a BHMA certified independent testing laboratory; a written certification showing successful completion of a minimum of 10,000,000 cycles must be provided by the independent laboratory. Concealed Vertical Rod Series Exit Device shall be tested to ANSI/BHMA A156.3 test requirements by a BHMA certified independent testing laboratory; a written certification showing successful completion of a minimum of 1,000,000 cycles must be provided by the independent laboratory.

13. Delayed Egress Devices: Function achieved within single exit device component, including latch, delayed locking device, request-to-exit switch, nuisance alarm, remote alarm, key switch, indicator lamp, relay, internal horn, door position input, external inhibit input plus fire alarm input. NFPA 101 "Special Locking Arrangement" compliant.

- B. Acceptable Manufacturers: Subject to compliance with requirements, provide exit device products of the following manufacturers:

1. Von Duprin CX

2.9 DOOR TRIM UNITS

- A. Fasteners: Provide manufacturer's standard exposed fasteners for door trim units (kick plates, edge trim, viewers, knockers, mail drops and similar units); either machine screws or self-tapping screws.
- B. Fabricate edge trim of stainless steel, not more than 1/2" nor less than 1/16" smaller in length than door dimension.
- C. Fabricate protection plates (armor, kick or mop) not more than 1-1/2" less than door width on stop side and not more than 1/2" less than door width on pull side, x the height indicated.
- D. Where existing doors are receiving new hardware, provide new protection plates on all doors that have existing plates, if not already specified. New plates are to be of equal or greater size than existing plates.
- E. Metal Plates: Stainless steel, .050" (U.S. 18 ga.).
- F. Acceptable Manufacturers:
 1. Ives
 2. Rockwood
 3. Quality

2.10 WEATHERSTRIP AND GASKETING

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- A. General: Except as otherwise indicated, provide continuous weather stripping at each leaf of every exterior door. Provide type, sizes and profiles shown or scheduled. Provide non-corrosive fasteners as recommended by manufacturer for application indicated.
- B. Replaceable Seal Strips: Provide only those units where resilient or flexible seal strips is easily replaceable and readily available from stocks maintained by the manufacturer.
- C. Acceptable Manufacturers:
 - 1. Pemko
 - 2. National Guard Products
 - 3. Zero

2.11 THRESHOLDS

- A. General: Except as otherwise indicated provide standard aluminum threshold unit of type, size and profile as shown or detailed.
- B. Provide welded custom thresholds where scheduled and noted in the hardware sets. Provide cover plates where scheduled.
- C. Provide thresholds that are 1" wider than depth of frame
- D. Acceptable Manufacturers:
 - 1. National Guard Products
 - 2. Pemko
 - 3. Zero

3.1 ELECTRICAL HARDWARE

- A. Furnish power transfers that are recessed into door and frame. Power transfers to allow electrical power to pass from door to frame without the use of door cords or transfer hinges.
- B. Furnish power supplies to operate electrified exit devices. Power supplies to have regulated output that is field selectable for either 24VDC @ 2 amps or 12VDC @ 4 amps. Standard input at 120VAC @ 1amp or 240VAC @ 0.5amp. Power Supplies to have five (5) knockout holes for conduit connection with terminal block that handles up to 14 gauge wire. Power supplies will handle up to 16 amp current inrush to retract exit device latch bolt.
- C. Furnish wiring diagrams to electrical contractor for use in installing electrical hardware products.
- D. Electrical contractor to run all wiring and make all final connections for electrified hardware. Hardware supplier shall be responsible to furnish all wiring diagrams to operate electrified hardware. Access control material and electrified hardware to interface at junction boxes.

3.1 INSTALLATION

- A. Hardware specified under this section for aluminum doors will be coordinated and delivered in a timely manner to aluminum door manufacturer for installation on aluminum doors prior to delivery

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to project. This coordination will not impede delivery of storefront or securing exterior of building during construction.

- B. Mount hardware units at heights indicated in "Recommended Locations for Builders Hardware for Standard Steel Doors and Frames" by the Door and Hardware Institute, except as specifically indicated or required to comply with governing regulations, and except as may be otherwise directed by Architect.
- C. Install each hardware item in compliance with the manufacturer's instructions and recommendations. Wherever cutting and fitting is required to install hardware onto or into surfaces which are later to be painted or finished in another way, coordinate removal, storage and reinstallation or application of surface protections with finishing work specified in the Division-9 sections. Do not install surface-mounted items until finishes have been completed on the substrate.
- D. Set units level, plumb and true to line and location. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.
- E. Drill and countersink units which are not factory-prepared for anchorage fasteners. Space fasteners and anchors in accordance with industry standards.
- F. Set thresholds for exterior doors in full bed of butyl-rubber or polyisobutylene mastic sealant.

3.2 ADJUST AND CLEAN

- A. Adjust and check each operating item of hardware and each door, to ensure proper operation or function of every unit. Replace units which cannot be adjusted to operate freely and smoothly as intended for the application made.
- B. Clean adjacent surfaces soiled by hardware installation.
- C. Final Adjustment: Wherever hardware installation is made more than one month prior to acceptance or occupancy of a space or area, return to the work during the week prior to acceptance or occupancy, and make final check and adjustment of all hardware items in such space or area. Clean operating items as necessary to restore proper function and finish of hardware and doors. Adjust door control devices to compensate for final operation of heating and ventilating equipment.
- D. Instruct Owner's Personnel in proper adjustment and maintenance of hardware and hardware finishes, during the final adjustment of hardware.

3.3 HARDWARE SCHEDULE

HW SET: 01

5	EA	HINGES	RE-USE EXISTING HINGES		IVE
1	EA	ELECTRIC HINGE	5BB1 4.5 X 4.5 TW8	630	IVE
2	EA	MANUAL FLUSH BOLT	FB458	626	IVE

DOOR HARDWARE

08710-10

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1	EA	PANIC HARDWARE	CX9875EO 3'	626	VON
1	EA	MORTISE CYLINDER	MORTISE CYLINDER TO MATCH EXISTING KEY SYSTEM	626	SCH
2	EA	SURFACE CLOSER	4041 HEDA	689	LCN
2	EA	SECURITY FLOOR STOP	FS18S	BLK	IVE
1	SET	SEALS	700SA	AL	NGP
2	EA	DOOR SWEEP	95WH	AL	NGP
1	EA	THRESHOLD	896V	AL	NGP
1	EA	INTERFACE BOX	JB7-R1	GRY	VON
1	EA	POWER SUPPLY	PS873	GRY	VON
2	EA	DPS	RE-USE EXISITING DPS		LOC

CHEXIT DEVICE TO PROVIDE DELAY AND LOCAL ALARM. INTERNAL SWITCHES TO BE WIRED BACK TO EXISTING ALARM THROUGH DOOR POSITION SWITCHES. KEY SWITCH IN DEVICE TO ARM, DISARM OR RESET THE DEVICE.

DOORS MAY BE PLACED IN HOLD OPEN POSITION USING THE FRICTION HOLD OPEN ARE PROVIDED WITH THE CLOSER.

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SECTION 11160 - LOADING DOCK EQUIPMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Dock lifts (scissors lifts).
- B. Related Sections include the following:
 - 1. Division 3 Section "Cast-in-Place Concrete" for concrete work for recessed dock and truck levelers.
 - 2. Division 5 Section "Metal Fabrications" for curb angles at edge of loading dock and around edge of recessed dock-leveler pit, and for platform edge channels.

1.3 DEFINITIONS

- A. Operating Range: Maximum amount of travel above and below the dock level.
- B. Working Range: Recommended amount of travel above and below the dock level for which loading and unloading operations can take place.

1.4 SUBMITTALS

- A. Product Data: Include rated capacities, furnished specialties, accessories, details of construction relative to materials, dimensions of individual components, profiles, and finishes.
- B. Shop Drawings: Show details of fabrication and installation. Include plans, elevations, sections, details, and attachments to other work.
 - 1. Provide templates for anchors and bolts anchored to permanent construction.
 - 2. Wiring Diagrams: Detail wiring for power, signal, and control systems and differentiate between manufacturer-installed and field-installed wiring.
- C. Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.
- D. Product Test Reports: Based on evaluation of tests performed by manufacturer and witnessed by a qualified independent professional engineer, indicate compliance of dock levelers with requirements

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of MH 30.1 for determining rated capacity, based on comprehensive testing within the last two years of current products.

- E. Maintenance Data: For loading dock equipment to include in the maintenance manuals specified in Division 1. Include name, address, and telephone number of manufacturer's nearest authorized service representative.
- F. Warranties: Special warranties specified in this Section.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: Engage an experienced installer who is an authorized representative of loading dock equipment manufacturer for both installation and maintenance of the type of units required for this Project.
 - 1. Maintenance Proximity: Not more than three hours' normal travel time from Installer's place of business to Project site.
- B. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of loading dock equipment that are similar to those indicated for this Project in material, design, and extent.
- C. Dock-Lift Standard: Comply with MH 29.1, "Safety Requirements for Industrial Scissors Lifts."
- D. Preinstallation Conference: Conduct conference at Project site to comply with requirements of Division 1 Section "Project Meetings."

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store and handle scissor lift in a manner to avoid damage.
 - 1. Comply with manufacturer's written instructions for minimum and maximum temperature requirements for storage.

1.7 COORDINATION

- A. Scissors Lifts: Coordinate size and location of pits to ensure proper clearances and operation of equipment. Concrete, reinforcement, and formwork requirements are specified in Division 3 Section "Cast-in-Place Concrete."
- B. Coordinate delivery of built-in anchoring devices to Project site to avoid delaying progress.

1.8 WARRANTY

- A. General Warranty: The special warranty specified in this Article shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be in addition

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to, and run concurrent with, other warranties made by the Contractor under requirements of the Contract Documents.

- B. Dock-Leveler Warranty: Submit a written warranty, executed by manufacturer, agreeing to repair or replace dock-leveler components that fail in materials or workmanship within the specified warranty period. Failures include, but are not limited to, the following:
 - 1. Structural failures, including cracked or broken structural support members and load-bearing welds.
 - 2. Deck plate failures, including cracked plate or permanent deformation in excess of 1/4 inch (6 mm) between deck supports.
 - 3. Hydraulic system failures, including failure of hydraulic seals and cylinders.
 - 4. Faulty operation of operators, control system, or hardware.
- C. Warranty Period: Two years from date of Substantial Completion.
 - 1. Warranty shall be for unlimited usage of the leveler for the specified rated capacity over the term of the warranty.

1.9 MAINTENANCE SERVICE

- A. Initial Maintenance Service: Beginning at Substantial Completion, provide 12 months' full maintenance by skilled employees of dock equipment Installer. Include monthly preventive maintenance, repair or replacement of worn or defective components, lubrication, cleaning, and adjusting as required for proper equipment operation at rated speed and capacity. Provide parts and supplies as used in the manufacture and installation of original equipment.
 - 1. Perform maintenance, including emergency callback service, during normal working hours.
 - 2. Include 24-hour-per-day, seven-day-per-week emergency callback service.
- B. Continuing Maintenance Service: Provide a continuing maintenance proposal from Installer to Owner, in the form of a standard yearly (or other period) maintenance agreement, starting on date initial maintenance service is concluded. State services, obligations, conditions, and terms for agreement period and for future renewal options.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Dock Lifts (Scissors Lifts):
 - a. Autoquip Corporation.
 - b. Pre-Approved Equal By Others

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- C. Products: Subject to compliance with requirements, provide one of the products specified in the Loading Dock Equipment Schedule.

2.2 DOCK LIFTS (SCISSORS LIFTS)

- A. General: Provide manufacturer's standard hydraulic dock lift of capacity, size, and construction indicated, consisting of a nonslip steel platform with beveled toe guards on all four sides, steel scissor legs, and hydraulic operating system, complete with controls, safety devices, and accessories required.
- B. Type: Provide stationary single-scissors-type hydraulic dock lift designed for permanent, recessed installation in a preformed concrete pit at location indicated.
- C. Rated Capacity: Provide lifting capacity of not less than 8000 lb (3629 kg) with 6400-lb (2948-kg) axle load at ends and 6400-lb (2268-kg) axle load at sides.
- D. Vertical Travel: Provide maximum vertical travel of 60 inches (1524 mm) from a lowered height of 12 inches (305 mm) for a raised height of 68 inches (1829 mm).
- E. Travel Speed: Nominal raising speed of 12 fpm (0.04 m/s).
- F. Construction: Fabricate lift from structural-steel shapes rigidly welded and reinforced for maximum strength, safety, and stability. Design assembly to withstand deformation during both operating and stored phases of service. Provide mounting brackets and removable lifting eyes for ease of installation.
 - 1. Platform: Fabricate platform from heavy steel plate with beveled toe guards on all four sides to comply with requirements of MH 29.1. Provide matching, hinged, throw-over bridge where indicated and removable handrails.
 - a. Platform Surface: Nonskid, safety-tread deck plate.
 - b. Platform Size: 84 inches (1829 mm) wide by 120 inches (3048 mm) long.
 - 2. Hinged Bridge: Provide hinged, throw-over bridge bolted to full-length, heavy-duty, piano-type hinge welded to toe guard at end of platform. Provide bridge complete with heavy-duty lifting chains. Chamfer edge of bridge to minimize obstructing wheels of material-handling vehicles.
 - a. Bridge Material: Nonskid, safety-tread steel plate.
 - b. Bridge Size: 18 inches (457 mm) long by 72 inches (1829 mm) wide.
 - 3. Scissors Mechanism: Fabricate leg members from heavy, steel-formed tube or plate members to provide maximum strength and rigidity.
 - 4. Cylinders: Equip lift with not less than two heavy-duty, high-pressure, hydraulic, ram-type cylinders. Rams shall be either direct-displacement plunger or rod-and-piston type with positive internal stops as standard by manufacturer. Cylinder rods shall be chrome plated and polished to prevent rusting.
 - 5. Bearings: Provide pivot points with permanently lubricated antifriction bushings or sealed ball bearings for minimum maintenance.
- G. Operation: Provide manufacturer's standard, self-contained, hydraulic power unit for raising and lowering lift, controlled from a remotely located push-button station.

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1. Electrical Requirements: Coordinate wiring requirements and current characteristics with building electrical system.
 2. Power Unit: Provide manufacturer's standard, self-contained, remotely located power unit of size, type, and operation needed for capacity of lift indicated. Power unit shall consist of a continuous-duty motor, high-pressure gear pump, valve manifold, oil-line filters, and oil reservoir.
 - a. Manifold shall contain a relief valve, check valve, pressure-compensated flow-control valve and solenoid valve, and provisions for lowering lift manually if power fails.
 - b. Oil-line filters shall include one for the oil reservoir, one for the valve manifold, and one for the lift itself.
 - c. Rate of Descent Protection: Provide manufacturer's standard pressure compensated flow control to limit down speed.
 3. Remote-Control Station: Provide a weatherproof, multibutton control station of the constant-pressure type with up and down push buttons. Controller shall consist of a magnetic motor starter with three pole-adjustable overloads and 24-V control transformer with a 4-A, fused secondary prewired to terminal strips and enclosed in a NEMA ICS 6, Type 12 box.
 - a. Upper-Travel-Limit Switch: Equip unit with manufacturer's standard, adjustable, upper-travel-limit switch.
- H. Safety Devices: Provide manufacturer's standard and optional safety devices as follows:
1. Removable Handrails: Provide removable handrails on two sides of platform with a single, removable chain across each end. Handrails shall be 42 inches (1067 mm) high with a midrail and 4-inch- (102-mm-) high kick plate at bottom. Mount rail sockets flush with platform surface.
 2. Maintenance Leg: Provide manufacturer's standard, removable, safety maintenance leg.
 3. Toe Protection: Provide manufacturer's standard toe protection along entire unprotected side of lifts.
- I. Finish and Color: Manufacturer's standard paint applied to factory-assembled and -tested dock lifts before shipping. Paint toe guards yellow with black stripes to comply with ANSI Z535.1, and paint remainder of surfaces in manufacturer's standard color.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of lift equipment.
- B. Examine roughing-in for electrical systems for lift equipment to verify actual locations of connections before installation.
- C. Examine walls and floors of pits for suitable conditions where recessed dock equipment is to be installed. Pits shall be plumb and square, and properly sloped for drainage from back to front of dock.

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- D. Proceed with installation of loading dock equipment only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. General: Coordinate installation of loading dock equipment indicated to be attached to or recessed into concrete or masonry, and furnish anchoring devices with templates, diagrams, and instructions for their installation.
- B. Clean recessed pits of debris.

3.3 INSTALLATION, GENERAL

- A. General: Comply with manufacturer's detailed written instructions for installing loading dock equipment.
 - 1. Install equipment, motor, pump, control stations and wiring, safety devices, and accessories as required for a complete installation.

3.4 DOCK-LIFT INSTALLATION

- A. Coordinate forming recessed pit for dock lifts to ensure that depth is adequate to accommodate lift in proper relation to loading platform.
- B. Attach dock lift securely to loading platform construction according to manufacturer's written instructions.

3.5 ADJUSTING

- A. Adjust loading dock equipment for safe, efficient operation.
- B. Test dock lift for vertical travel within operating range indicated.

3.6 CLEANING AND PROTECTING

- A. Restore marred, abraded surfaces to their original condition.
- B. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer, that ensure loading dock equipment is without damage or deterioration at the time of Substantial Completion.

3.7 DEMONSTRATION

- A. Startup Services: Engage a factory-authorized service representative to perform startup services and to train Owner's maintenance personnel as specified below:

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1. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
2. Train Owner's maintenance personnel on procedures and schedules related to startup and shutdown, troubleshooting, servicing, and preventive maintenance.
3. Review data in maintenance manuals. Refer to Division 1 Section "Contract Closeout."
4. Review data in maintenance manuals. Refer to Division 1 Section "Operation and Maintenance Data."
5. Schedule training with Owner, through Architect, with at least seven days' advance notice.

3.8 LOADING DOCK EQUIPMENT SCHEDULE

A. Scissor Lift: Where dock lift is indicated, provide product complying with the following:

1. Products: Provide the following or equal by others:
 - a. Autoquip PLT Scissor Lift-PLT-6080B
2. Type: Stationary, scissors
3. Rated Capacity: 6400LB
4. Vertical Travel: 60 INCHES
5. Platform Surface: Nonskid, safety-tread deck plate.
6. Platform Size: 84 INCHES x 120 INCHES
7. Bridge Location: End.
8. Bridge Surface: Nonskid, safety-tread deck plate.
9. Handrails: Removable.

END OF SECTION 11160